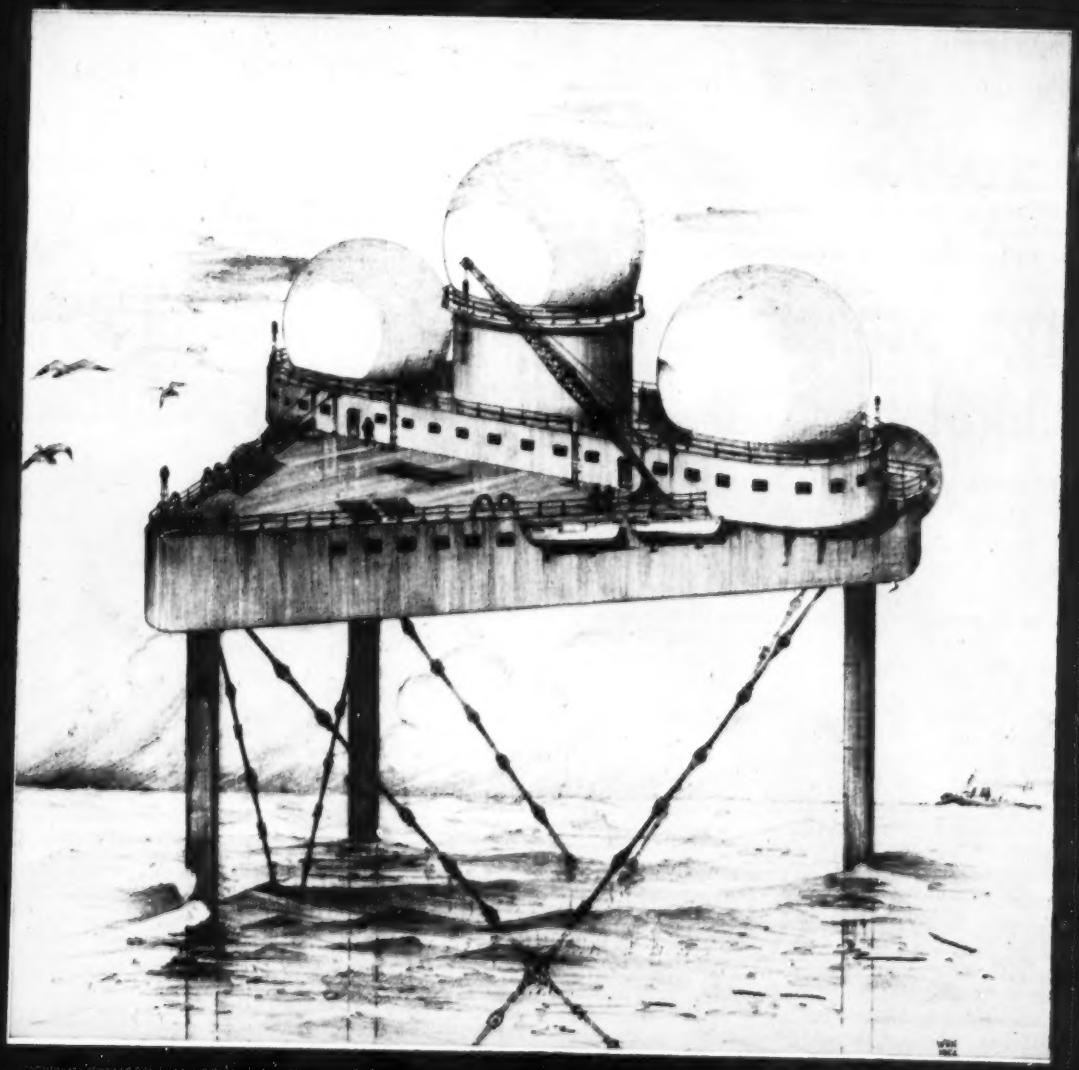
ENGINEERING NEWS-RECORD



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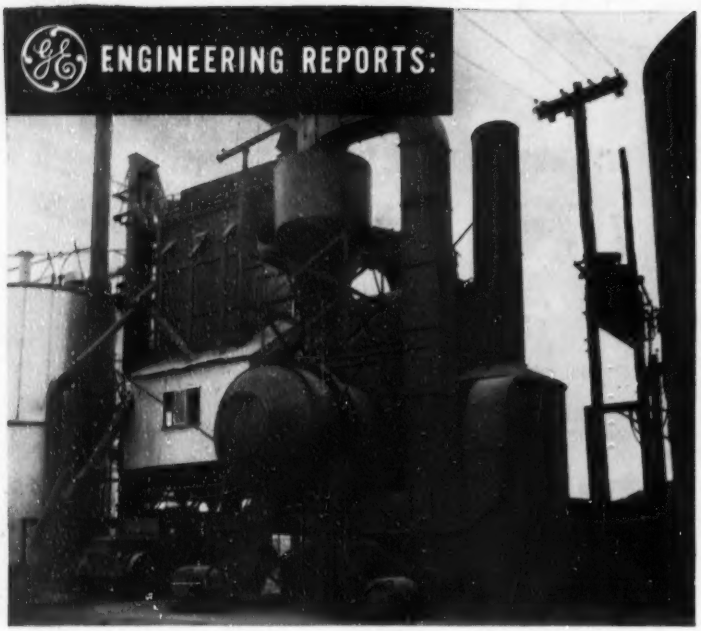
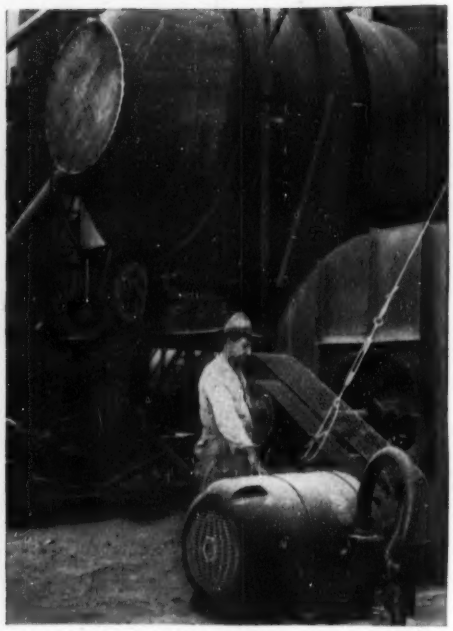


G-E SERVICE is quickly available to any Simplicity-built plant. An asphalt plant must be dependable above all—no G-E motor has failed in this Triboro Asphalt Co., Flushing, N. Y., installation since its construction in 1949.



ECONOMICAL OPERATION is one advantage of using General Electric drives. This 100-hp G-E motor operates main dust blower at Triboro.

Large asphalt-plant builder standardizes on General Electric equipment for dependability

G-E motors and controls help maintain continuous high output at Simplicity-built plants

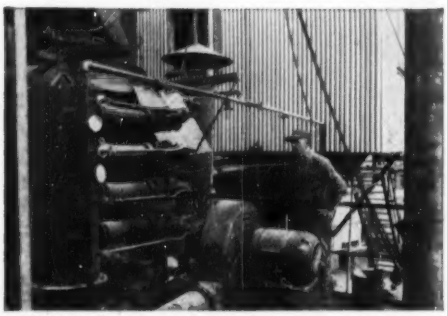
The Simplicity System Co. of Chattanooga, Tenn., has used General Electric motors and controls since they first electrified this type of asphalt plant. W. C. West, Simplicity general manager, says "We not only feel G-E apparatus is the most dependable of any available, but for years we've been highly pleased with G-E service."

Reliable, flexible motors are required for these applications. Simplicity-built plants are often remotely located at the end of utility lines or where power availability is low. Drive motors are subjected to very high starting torques. Even a one-hour shutdown can cost more than a thousand dollars in lost production alone. Because of these conditions, G-E motors designed to operate under high starting torques and low starting currents were selected after Simplicity ran a series of tests for various applications, in co-operation with G-E engineers.

Your construction equipment will gain in dependability and efficiency too, when you electrify with G-E drives and power distribution equipment. They're backed by G-E engineering help in application, installation and service, available through any G-E Apparatus Sales Office, or by writing General Electric Co., Section 664-33, Schenectady, N. Y.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC



DEPENDABILITY is built into this 25-hp G-E motor, which operates the burner controlling the temperature and consistency of asphalt mixture.

CENTRALIZED G-E CONTROL PANELS are factory assembled and system-wired; they provide safer control for all motors in a Simplicity plant.

HOW THEY ADDED YEARS TO THE BOOM'S LIFE

Many a sidewalk superintendent has winced at the beating taken by excavating equipment, like this trench hoe built by Hanson Clutch & Machinery Co., Tiffin, Ohio. It takes a rugged boom and stick, for example, to absorb those jarring impacts and straining lifts day in, day out, with no downtime for repairs.

Wanting their product to stay on the job even in tougher-than-usual service, the Hanson people turned to Mayari R high-strength, low-alloy steel. They found that Mayari R, with its yield point of 50,000 psi, built a much stronger boom and stick than carbon steel, without increasing the weight. One of these Hanson units, operating with an oversize bucket, recently completed six years' service with its boom and stick still in excellent condition.

Besides its use in construction equipment, Mayari R is becoming increasingly valuable as structural material. Its high strength and endurance limit, superior corrosion-resistance, and excellent impact properties make this versatile steel the logical choice for a wide variety of constructional applications. Helpful information about Mayari R is detailed in our new Catalog 353. You can get a copy through our nearest office.
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

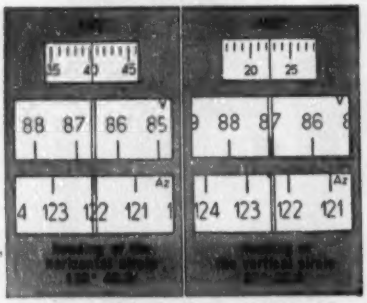
Mayari R *makes it lighter... stronger... longer lasting*

THE ACME OF ACCURACY IN ACTION

WILD T-1 OPTICAL *REPEATING* TRANSIT

Rugged, compact design... with 20 years of proven service under tough field conditions.

Both circles read from one single position through microscope alongside telescope eyepiece. Optical micrometer eliminates possibility of reading error. Illumination is provided by daylight mirror or battery attachment for night, underground or mine work.



WILD surveying instruments, inherently accurate, are Swiss precision designed for stability under adverse conditions, for sturdiness, and for ease in operation... they provide lasting trouble-free service.

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Robert F. Boger

Publisher

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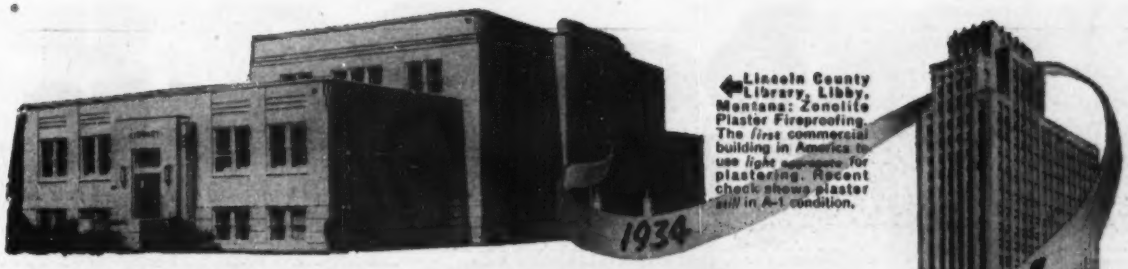
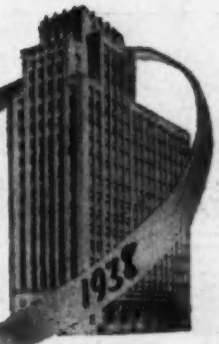


Lincoln County Library, Libby, Montana: Zonolite Plaster Fireproofing. The *first* commercial building in America to use *light aggregate* for plastering. Recent check shows plaster still in A-1 condition.



Time Tells The Story...

...Positive Proof That In America's Most Important Buildings

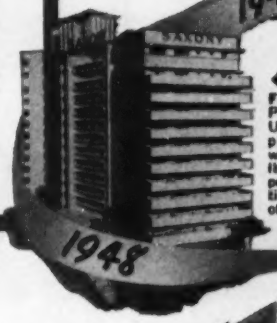
ZONOLITE® PLASTER STANDS THE TEST OF TIME!

Zonolite Plaster is *more* than a construction time-saver...*more* than a dead-weight saver...*more* than a fire-proofing material earning the highest attainable fire ratings. Zonolite Plaster is the lightweight champion that defies time. A recent check on the Zonolite plaster in a group of blue ribbon buildings (some of them constructed more than 20 years ago) shows the original plaster in A-1 condition! No wonder, today's building teams look to Zonolite, *the time-tested lightweight champion!*

ZONOLITE COMPANY
135 South LaSalle Street Chicago 3, Illinois

Gen'l Nat'l Bank, Shreveport, La.: Zonolite Plaster Fireproofing. The *first* use of Zonolite in Shreveport.

Mercantile Nat'l Bank, Dallas, Tex.: Another grand-daddy in the Zonolite family of famous buildings. Saved 1880 tons of steel worth $230,000.00. Weights of fireproofing materials slashed 94%.



Saxony Hotel, Miami Beach, Florida: Zonolite Plaster throughout. Use of Zonolite in plaster slashed weight 3 million lbs.; helped make possible construction speed record of 8 months.

Gen'l Petroleum Bldg., Los Angeles: Beam fireproofing with Zonolite saved $1.70 a sq. ft.

Lever House, New York City: Winner of the AIA Gold Medal Award, this widely publicized building is fireproofed with Zonolite plaster.

Prudential Bldg., Chicago, Illinois: Newest of the new on Chicago's skyline, another monument to Zonolite. Fireproofed with plaster-placing equipment.

Send For FREE Information NOW

ZONOLITE (BRAND) VERMICULITE AGGREGATES

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Chicago 3, Illinois

Please send me free booklet on Zonolite Plaster.

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Address .....

City ..... Zone.... State .....

BIG HOLES

EVEN IN THE TOUGHEST GOING

BUCYRUS ERIE

A balanced drilling motion that produces outstanding hole footage even in the toughest drilling—that's what you get with Bucyrus-Erie's big-hole 50-T and 29-T churn-type blast hole drills. Drilling speed, length of stroke, and tool weight are all coordinated to provide a concentration of maximum energy where it counts most—at the bottom of the hole.

Striking up to 55 blows per minute, these Bucyrus-Erie drills maintain a rapid, even drilling pace. With the sharp hit-and-snap-up action provided by the derrick head shock absorber, each drilling blow effectively shatters rock. Rigid construction, big derrick capacity, and plentiful reserve power permit handling extra heavy tool strings.

For fast profitable operations, standardize on Bucyrus-Erie blast hole drills—the rigs that put down the big ones even in the toughest formations. Write for complete details on these machines for large diameter blast holes—the 50-T for 9" to 12" holes, the 29-T for 6" to 9" holes.

8854

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

B.F.Goodrich

Universal tires average 40,000 miles in concrete delivery service

THE Concrete Ready Mixed Corp. delivers concrete to construction sites around Roanoke, Va. The trucks work 60 hours a week hauling gross loads of 20 tons over all types of roads, often over no roads at all.

CONCRETE READY MIXED CORP. reports they save 60% by being able to recap B. F. Goodrich Universal tires. They say the specially-compounded Universal tread gives so much traction, they never need chains.

For rugged service like this, the company specifies B. F. Goodrich Universal tires, reports they defy rock cuts and bruises, roll 40,000 miles and can be recapped!

All-Nylon cord body

Universal tires wear longer because they are built with an all-nylon cord body (sizes 12.00 and larger). Nylon is stronger than ordinary cord materials, withstands double the impact and resists heat blowouts and flex breaks.

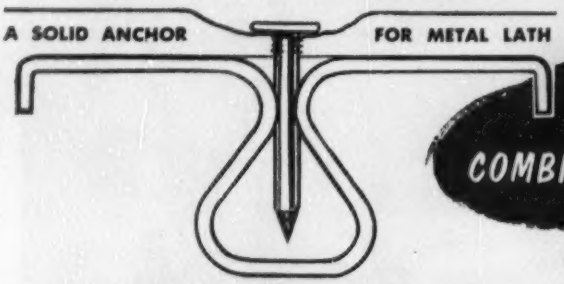
Under the tread is the B. F. Goodrich nylon shock shield. Layers of strong nylon cords stretch together to absorb and distribute impacts and shocks. Result: Universal tires wear longer, can be recapped more times. You pay nothing extra for this patented B. F. Goodrich nylon shock shield.

See all-nylon Universal tires at your B. F. Goodrich retailer's (smaller sizes in all-nylon or rayon construction). They'll cut your tire costs by giving you longer, trouble-free service. For the BFG address, look under Tires in the Yellow Pages of your phone book, or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, O.*

Specify B. F. Goodrich tires when ordering new equipment.

RESEARCH KEEPS
B.F.Goodrich
FIRST IN RUBBER

IS SPEED OF ANY CONSEQUENCE TO AN ARCHITECT OR STRUCTURAL ENGINEER?



FACT NO. 1

COMBINES TIME and MATERIAL SAVINGS

NAILABLE STEEL JOISTS

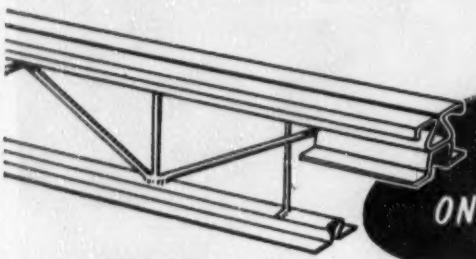
NOT JUST ONE JOIST—BUT THE TYPE ESPECIALLY DESIGNED TO MEET YOUR NEEDS MORE ECONOMICALLY.

SPEED is the total labor hours you save on any part of a job in contrast to usual work schedules.

Is speed ONLY the concern of the general contractor or is this cost factor related to the design-engineering-specifying function of the architectural firm or consulting engineer?

ANY PRODUCT basically designed to save man hours and reduce material costs to the point construction costs can be lowered and better controlled—answers that question—and places a direct responsibility on the specifying team.

When metal lath or any centering material is nailed, the operation is faster than other methods and the solid anchor prevents tons of wasted concrete from sagging down into pockets between joists.



FACT NO. 2

ONE ENTIRE OPERATION IS ELIMINATED

You'll Want This New Catalog for Your Files

SEND FOR YOUR COPY TODAY!

When Steel Erectors have to attach ceiling extensions, the whole job is slowed down. Macomber makes standard Steel Joists requiring no ceiling extensions. The bottom chord comes right up to the wall line. This is one of four standard joists described in the new catalog shown here.

● *These Exclusive Structural Advantages are Available ONLY in Macomber V Joists and Protected by U. S. Patents.*

ORIGINATORS OF THE OPEN WEB STEEL JOIST

STANDARDIZED STEEL
V BAR JOISTS • LONGSPANS

BUILDING PRODUCTS
STEEL TRUSSES • STEEL DECK

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

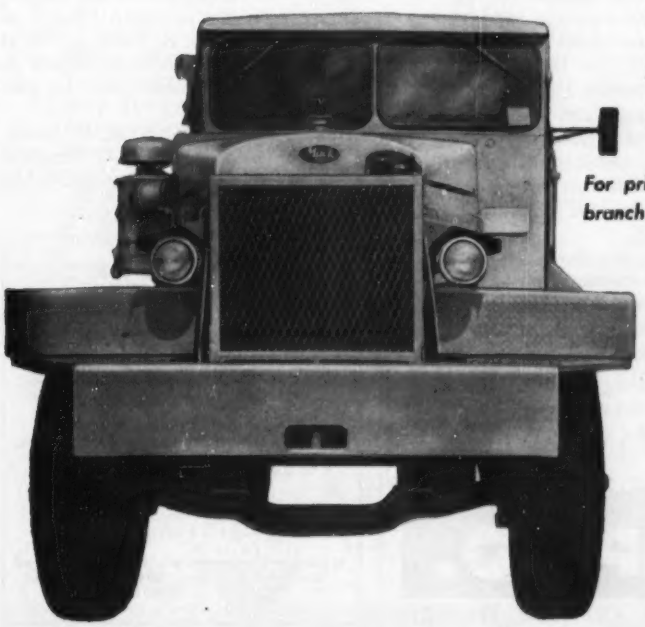
TWO NEW MACK 4-WHEEL DUMPERS

15-ton and 22½-ton payloads for earth moving and ore hauling

Here are two new Mack 4-wheel dumpers that are modified versions of famous Mack 6-wheel off-highway trucks. Simplified in design—yet with no sacrifice of brawny Mack construction—they bring BIG-MACK ADVANTAGES within the means of every large-volume hauler of earth, rock, and ore.

Here are the highlights:

	15-TON PAYLOAD MODEL LRX	22½-TON PAYLOAD MODEL LVX
ENGINE, STANDARD DIESEL OPTIONAL DIESEL	Mack Thermodyne Cummins NH6	Cummins NH6S Cummins NHRBS
CLUTCH	Mack 2-plate	Mack 2-plate
TRANSMISSION	Mack 9-speed	Mack 8-speed
TORQUE CONVERTERS	—	Allison or Schneider
REAR AXLE	Mack triple reduction with Dual Reduction carrier and Planidrive at wheels	
POWER-ASSIST STEERING	Optional	Standard
FRAME, I-BEAM, SIZE MATERIAL	12½" x 8⅝" x ½" Alloy Steel	13-11/16" x 8" x 5/8" Alloy Steel



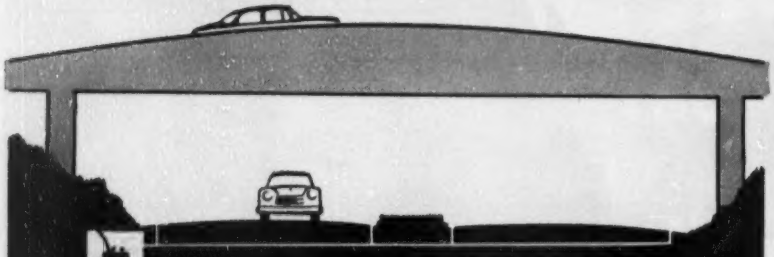
For prices and detailed information, see your nearest Mack branch or distributor.

Mack TRUCKS

Mack Trucks, Empire State Building, New York 1, N. Y. Factory Branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

2637

For UNDERPASS DRAINAGE



SUBMERSIBLE EJECTOR

New! with 6" DISCHARGE!

A "Big Brother" to the famous 3" and 4" Pumps

FIG. SE-890

NO PUMP HOUSE REQUIRED

Capacities to 2000 GPM

The new ejector designed for completely submerged operation is constructed with the same engineering features that have made the 3" and 4" Submersible Ejectors so trouble-free and efficient. It can be supplied with 5" or 6" discharge, with heads to 70 feet and capacities to 2000 GPM.

The new pump has been developed to answer the need for low cost installations where large quantities of water must be drained quickly. It is particularly adapted for highway underpass drainage and is designed for continuous operation during flood periods. The NON-CLOG Impeller will handle 3½" solids.

Can be supplied with control systems having no moving parts in the pits. Multiple installations are furnished with controls to program the operation for load requirements.

CONSTRUCTION FEATURES:

Motor and bearings are hermetically sealed. The motor, housing, drive shaft and impeller — all of the working parts — are an integral and interchangeable unit and can be removed without disturbing the piping. They are not subject to corrosion, deterioration or injury when standing idle—regardless of weather conditions.

The NON-CLOG Impeller is of manganese bronze; pump shaft stainless steel; permanently sealed ball bearings; volute type casing of nickel iron; motor windings of special design and construction are permanently non-corrosive; motor housing machined and sealed to exclude dirt and water.

Ask for Bulletin SE 860 B

weil PUMP CO.

1528 NORTH FREMONT STREET • CHICAGO, ILLINOIS

READER COMMENT

Billions Not Millions

SIR: In the article on our new water supply (ENR Oct. 21, 1954, p. 41) the first paragraph refers to its capacity as 1.5 million gallons per day. This should be 1.5 billion gallons per day. The error would be obvious to any water supply engineer, but we would like to correct it nevertheless. In all other respects the article is splendid.

ARTHUR M. FIELD,
Chief Engineer
Charleston Development Board
Charleston, S. C.

Regretted Omissions

SIR: The item on the Rocky Mountain Nuclear Power Study Group (ENR Oct. 28, 1954, p. 11) correctly states that it is a nine company group, but then goes on to list only eight companies. The Riley Stoker Corporation, Worcester, Mass., is the company omitted.

R. J. KRIEGER,
Vice president-Sales
Riley Stoker Corp.

SIR: Your article on the moving of a Nazi submarine from Lake Michigan into the yard of the Museum of Science and Industry in Chicago (ENR Sept. 30, 1954, p. 23) failed to mention the name of the firm that moved it—LaPlant-Adair Co., Indianapolis, Ind. As contractors and moving engineers we are particularly proud of this job, which L. R. Lohr, president of the Museum, has characterized as "one of the most amazing moving jobs of our time."

K. F. ADAIR,
President
LaPlant-Adair Co.

CALENDAR

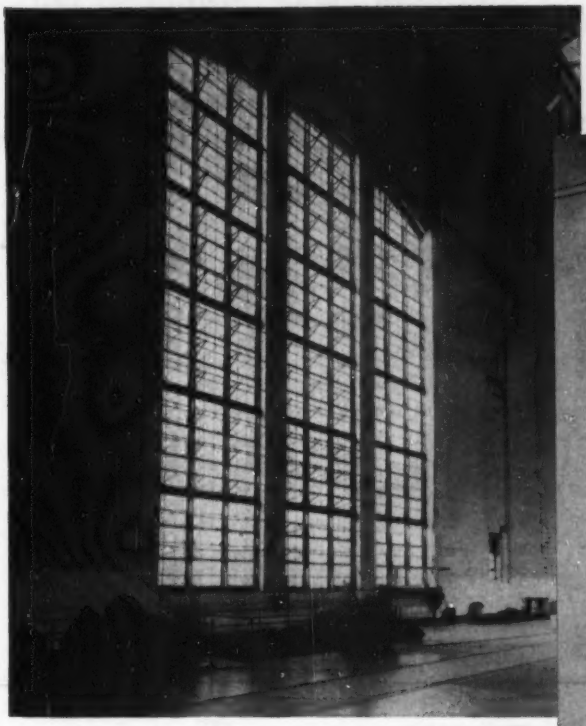
Building Research Institute, research conference on modular measure, National Academy of Sciences, Washington, D. C., Dec. 9.

American Road Builders Association, convention, Roosevelt Hotel, New Orleans, Jan. 10-13.

National Association of Home Builders, convention, Conrad Hilton Hotel, Chicago, Jan. 16-20.

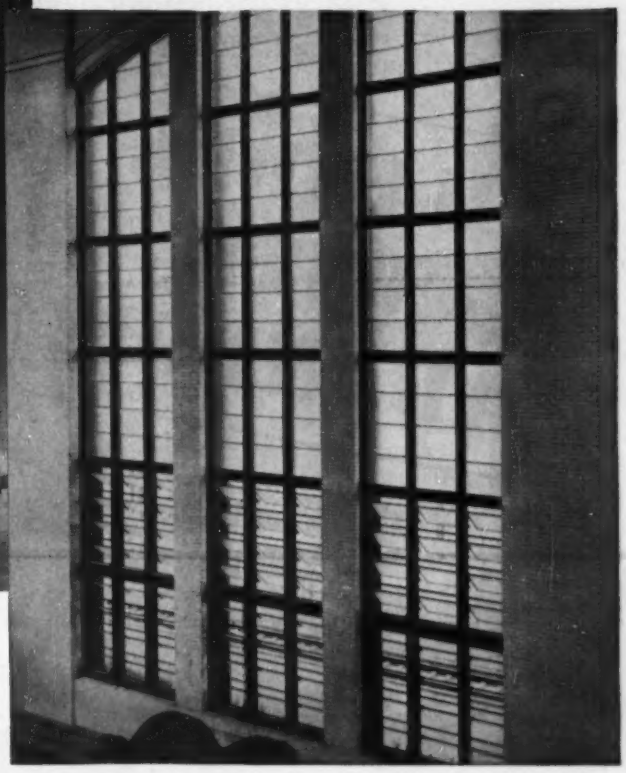
Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Jan. 23-27.

Mason Contractors Association of America, annual convention, Jefferson Hotel, St. Louis, Jan. 30-Feb. 2.



BEFORE: Pivoted windows, with applied operator equipment on inner wall. Ventilator operation was inefficient; glass breakage and maintenance demands were severe.

AFTER: Truscon Donovan Windows, replacing older pivoted windows, provide trouble-free ventilator operation and improved appearance. Note simple, concealed operators.



TRUSCON DONOVAN WINDOWS

Solve A Power Plant Pressure Problem

Power plants have special window problems. Equipment operates at high pressure. Burners gulp great amounts of air. Because of rapid air consumption, pressure variations occur. Windows must open and close rapidly to compensate.

This station formerly was equipped with pivoted windows. But, operator arms had largely failed. Ventilator control was lost. The solution was a new installation of Truscon Donovan Steel Windows.

Now, they can open and close ventilators rapidly and simultaneously. Air pressure is more precisely controlled. Operators are completely concealed and protected against possible corrosion. Maintenance is substantially reduced.

These are large window openings. Subject to heavy windload. Rigid, heavy sections are needed to resist bending under wind pressure and protect against glass breakage. Truscon Donovan Windows have that needed strength of section.

What large-area window problems do you have? Using Truscon Donovan Steel Windows you can group great expanses of ventilators in attractive interior and exterior building elevations. Truscon window engineers will help you design specific applications. Write:

TRUSCON STEEL DIVISION
REPUBLIC STEEL
1064 ALBERT STREET • YOUNGSTOWN 1, OHIO
Export Dept: Chrysler Bldg., New York 17, N.Y.

TRUSCON MARK OF MERIT PRODUCTS

REPUBLIC STEEL

A NAME YOU CAN BUILD ON

HANDLE WITH ABANDON!

U. S. Matchless Wire Braid Air Hose

No "babying" needed here! U. S. Rubber Engineers designed this premium quality hose with more than enough brute strength and stamina to withstand the *highest* working pressures, the *toughest* construction conditions.

And U. S. Matchless® has *proved* its ability to take both use and abuse *indefinitely*—on jobs around the world—serving long after ordinary hose has been ruined by abrasion, crushing and high pressure.

Yet in spite of its great strength, U. S. Matchless is highly flexible—practically as easy to handle as a garden hose.

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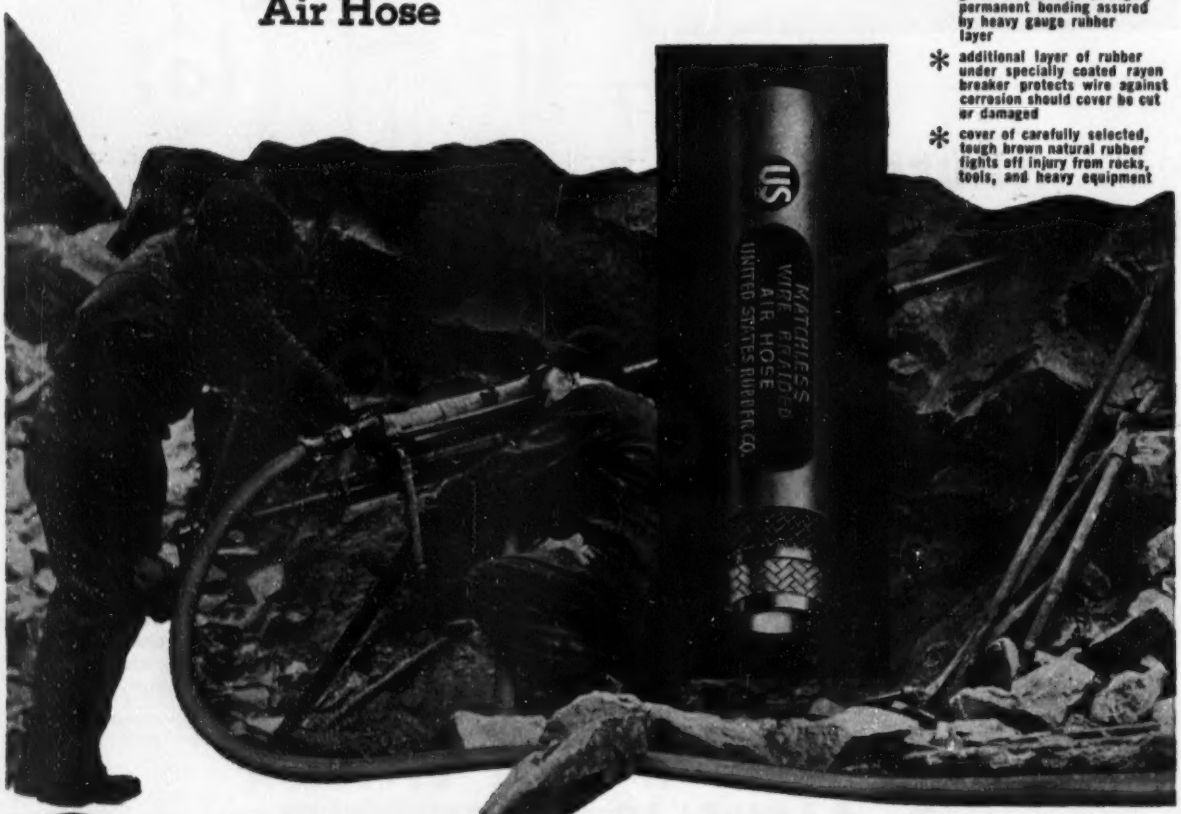

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THE CONSTRUCTION WEEK

EXPERIENCE VS. EXAM—If you have sufficient experience (and live in Kentucky) you are within your rights to refuse to take a written examination—and must be issued a license as an architect.

The Kentucky Court of Appeals said that, in effect, in declaring the State Examination Board was wrong in refusing a license as an architect to August C. Baker, of Louisville, who had refused to submit to a four-day written examination. Baker said the state law provides that a license "shall be issued" to a person qualified by experience. He contended—and the court agreed—that his 26 years as a draftsman was sufficient experience.

TURNABOUT—Alabama's Highway Department—having won out in an action brought by a motel owner who sought to prevent construction of a highway bypass—now has sued the suer for $98,000 damages.

Original action (ENR Oct. 21, p. 17) was brought to prevent the department from building a bypass that would have cut the motel off the main road between Mobile and Birmingham. The state's high court decided that it was the department's privilege to lay out its roads to the best interests of the state's population, as a whole, not individually.

So the department last week asked the courts for damages, to repay it for delays caused by the action.

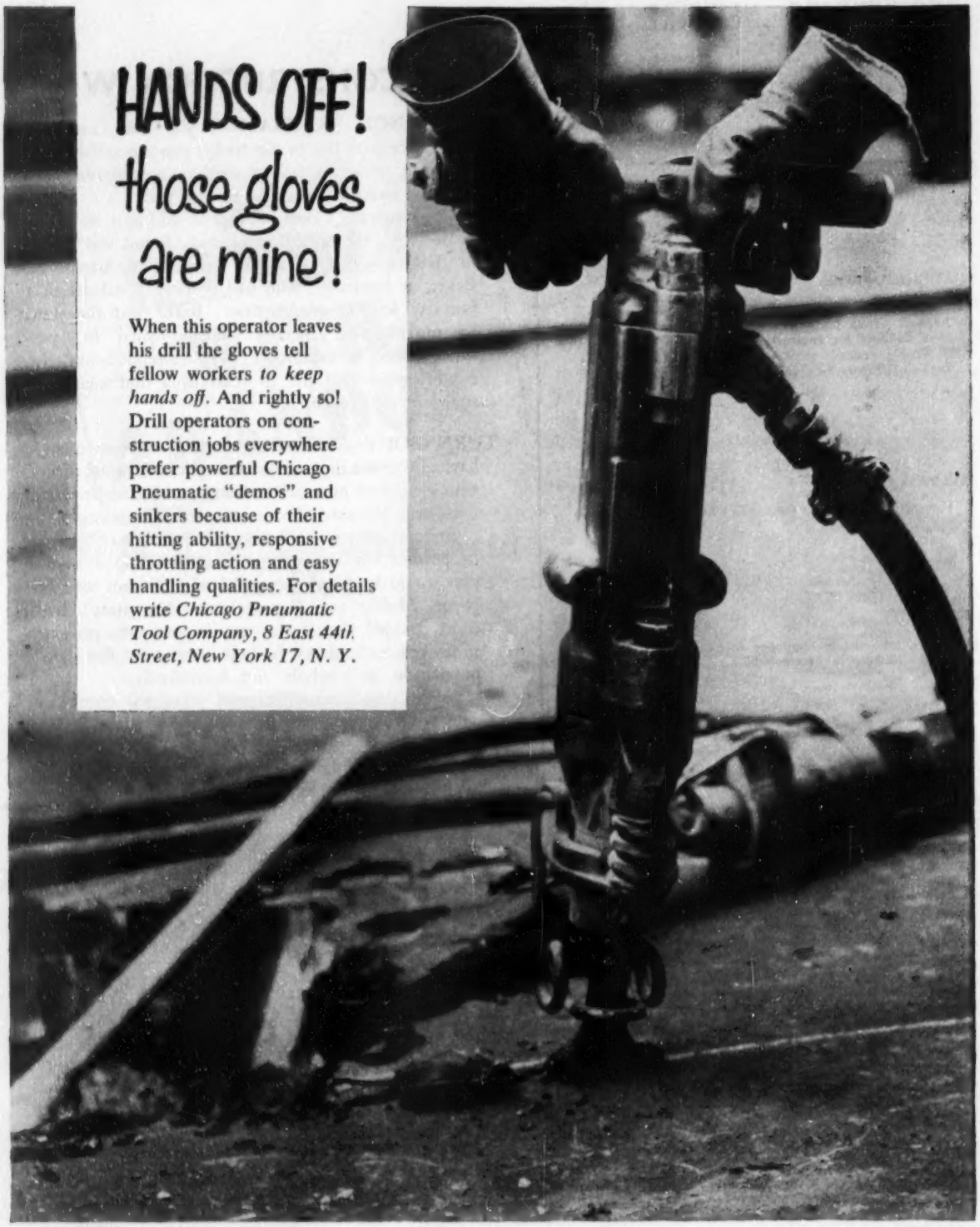
BILLBOARDS NOT BAD?—Long a prime target for many organizations, billboard owners gratefully—and somewhat in a state of shock—accepted compliments.

The editor of the official journal of the General Federation of Women's Clubs praised the billboards for contributions to the nation's economy and to public service and community planning; a professor of psychology at Iowa State said that billboards tend to improve the alertness of drivers, hence contribute to lowering accident rates.

BIDS GO UNDER—Indiana's Toll Road Commission happily announced that construction contracts on its new highway are running 26.48% under estimates. That, said the commission, will mean a saving of about $35 million on the $176 million set up as construction cost.

MONEY NEEDED—Like another state, South Carolina surveyed its highway needs—got some sad news as a result.

The survey made it clear, said Chief Highway Commissioner C. R. McMillan, that the state has existing highway deficiencies that will cost $568 million to remedy; and ought to spend another $758 million over the next 30 years to keep itself ahead of the growing highway demand.



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WASHINGTON OBSERVER

Supreme Court this week sweepingly approved urban redevelopment as completely constitutional in the broadest possible terms. In a long-awaited decision, the court said legislatures can undertake redevelopment not only to clear actual slums, but to make communities beautiful, spacious and well-balanced. The decision gives the strongest legal underpinning to the vast expansion of slum clearance contemplated under the Eisenhower-sponsored urban renewal law (see pages 15-17).

Basic constitutional questions were involved in the case brought by a District of Columbia department store owner whose property was within an area designated for redevelopment (ENR Sept. 30, p. 22).

•

Here are key issues settled by the unanimous decision which could have hampered programs throughout the country:

Urban renewal legislation is an exercise of the police powers of the state, and thus use of eminent domain to condemn property is constitutional.

Legislatures and their agencies can decide whether to take an area approach instead of a piecemeal approach. This means that property which is not itself "slum"—even a modern store—may be seized if it is necessary in redesigning the entire area.

Seizure of private property to be turned over to private interests is consistent with "public use" and thus complies with the constitutional requirement that property may be seized only for public purposes.

Rights of property owners are satisfied with compensation they receive as required by the Fifth Amendment. Actually, the decision leaves such owners with little else in the way of rights.

•

State governors are lining up behind Eisenhower's highway program. As things are shaping up, they'll be a powerful force for the President's proposal to increase highway construction by $5 billion a year for 10 years. It's a complete switch from the longtime basic stand of the states.

The governors' seven-man highway committee has thrown over the old policy which was that the federal government get out of highway construction entirely, and at the same time turn over the two-cent federal gas tax to the states.

Now they favor the U. S. financing the 40,000-mi interstate system plus the necessary urban access routes connecting with this system. They also recommend continued federal grants for all other roads in the 675,000-mi federal-aid network.

The committee approves the idea of a federal bond-issuing agency to raise the additional federal revenue needed to finance the program.

•

These recommendations were sent to all 48 governors last week—and their reactions will be considered at a meeting of the nine-man executive committee of the governors' conference in Chicago next week (Nov. 30).

This committee will put together a final report for Eisenhower on the entire conference of governors and it's now certain that the report will be everything that Eisenhower's group, headed by Gen. Clay, could have desired in the way of approval of their own ideas.

Clay's own report to the President should be ready the week of Dec. 6 unless there is some unforeseen hitch.

After that, it's largely up to Congress to determine what it wants to do with the recommendations Eisenhower will send to the Capitol sometime during the early weeks of the session.

Contractor Tappan tells why rubber beats tracks on city jobs

"Ability to haul over pavement, speed, and ease of control in traffic" are three major reasons why Contractor Edward Tappan of Tucson, Arizona, is enthusiastic about his new C Tournatractor.

Photos show this rubber-tired tractor and 12½-yd. scraper moving 15,000 yards of caliche and rock to grade streets and building sites for American Homes, Inc. at their new sub-division in Tucson.

40 yds. hourly on 2.4-mile cycle

Handling 100% of the dirt, Tournatractor regularly self-loaded about 10 pay yards of the tough, unrooted material. It hauled 1.2 miles across town through very heavy traffic . . . crossed curbs, pavement without planking . . . wasted dirt at city garbage dump. Complete 2.4 mile cycles averaged under 14 minutes.

"For jobs like this, where you have to haul in the city and over pavement, Tournatractor is the perfect machine," says Owner Tappan.

"It's very easy to operate in traffic," adds Operator Phil Ruh. "It has plenty of speed and rides easy."

Drives 23 miles at 19 mph

Operator Ruh drives Tournatractor everywhere under its own power. He made the 23-mile trip from Marana to Tucson at speeds up to 19 mph.

Whether you handle small dirtmoving jobs or big ones, it will pay you to check the advantages of a Tournatractor for assignments where you can benefit from this speed, flexibility, and ease of operation. We will be glad to demonstrate a Tournatractor on your job so you can judge its advantages for yourself. You say when and where . . . we'll be there.

Big multi-disc air brakes (2822 sq. in.) plus fingertip steer make maneuvering through traffic, around buildings, trees, easy for Tournatractor. In addition to pulling scraper, Contractor Tappan also uses Tournatractor as a bulldozer for land-clearing, and as a high-speed tractor for a land-plane and deep-plow.

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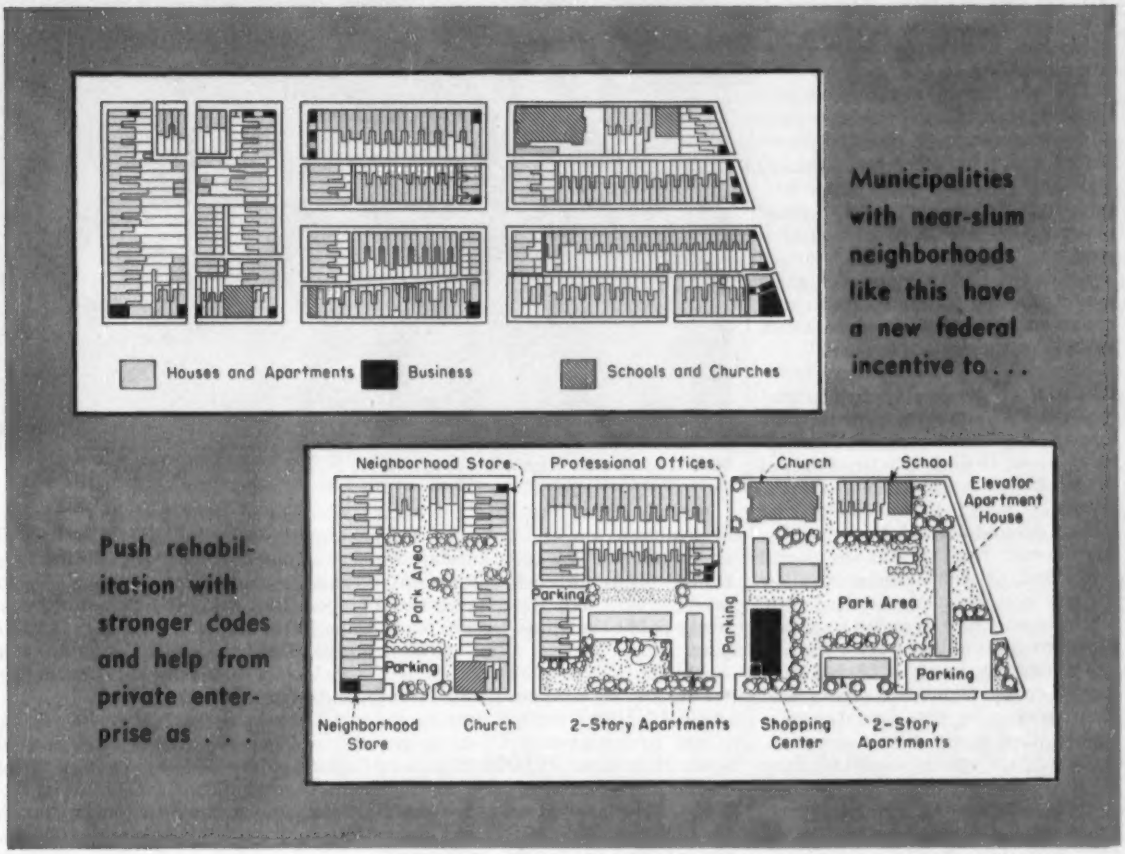


Urban Renewal Opens New Building Market

A significant new market for building contractors is shaping up as cities and towns hasten to take advantage of expanded federal aid for urban renewal—rehabilitation of neighborhoods that are close to becoming slums.

The 1954 housing law has given the federal government both a carrot and a stick with which to prod municipalities into undertaking slum prevention on a multi-million-dollar scale. Its stick is a provision making federal loans and grants contingent on stricter building code enforcement. Its carrot is liberalized FHA mortgage insurance for rehabilitating sub-standard housing.

Four municipalities by last week had submitted urban renewal programs for approval of the Housing and Home Finance Agency, as required by the new law. At least 80 other cities were known to be preparing their cases.

The Administration is prepared to ask the January session of Congress to vote $500 million for grants to cities in connection with urban renewal and related programs. This would augment federal loan and grant funds still available under the 1949 slum clearance and urban redevelopment law.

President Eisenhower had occasion last week to re-emphasize the local responsibility, private enterprise philosophy behind his neighborhood rehabilitation program. This was when he addressed the board of directors of a new non-profit, non-partisan organization formed to push urban renewal. Known as ACTION (American Council to Improve Our Neighborhoods), it consists of 53 representatives of industry, labor, banking, construction, religious and civic groups. It will maintain a research service, carry on educational activities and operate a field service, loaning specialists in various phases of urban renewal to the cities.

• **How cities qualify**—The HHFA wants proof that cities either have or are in process of creating the legal and administrative basis for implementing an effective urban renewal program. It also wants assurance that civic and business groups are behind the program.

A "workable" plan embracing these principles is a prerequisitie both for cities to receive federal loans and grants and for the applicability of certain new features of FHA insurance. Cities are required to satisfy seven requirements. Three key points are:

1. Codes and ordinances which prescribe minimum standards under which dwellings may be occupied.

2. A comprehensive general plan for the community, including— as a

(*Continued on page 16*)

. . . Urban renewal

bare minimum—a land-use plan, a thoroughfare plan and a zoning ordinance.

3. An administrative organization with firmly established power and ability both to enforce codes and carry out renewal programs.

The new law will not interfere with the more than 250 slum clearance and urban redevelopment projects already started under the 1949 law. The 200 municipalities sponsoring these projects have the option of going ahead under the old law or of putting their programs under the urban renewal provisions of the 1954 law. Or, going projects can be continued under provisions of the old law and an urban renewal program started as well.

• **Federal aid funds**—The federal government will continue, as under the slum clearance and urban redevelopment law of 1949, to pay two-thirds of the net cost to a municipality of carrying out a project—that is cost of land taking, demolition and clearance, less any income from re-sale of cleared land. And, it will continue to allow the city a credit on its one-third share for the expenditures it makes for public improvements in the area.

The new law, however, offers a more liberal credit allowance. Parks and playgrounds may now be taken as a credit. Also, a city may now use excess credit (above its one-third share of the cost) from one project and apply it to another.

Once a workable urban renewal program has been approved by HHFA, a city is eligible to obtain commitments and advances of planning funds for specific projects, followed by loans and grants as the work goes ahead. Loan and grant procedure is the same as under the 1949 law.

In 1949, Congress authorized $1 billion for loans and $500 million for grants. More grant money is being sought because as of Oct. 31 more than $375 million of the original authorization had been earmarked.

• **New FHA provisions**—The new law makes government-insured loans on easy terms available in areas formerly considered too risky for loan insurance. Section 220 authorizes FHA mortgage insurance both for new construction and for rehabilitation of dwellings in slum clearance and urban renewal areas. This form of loan insurance is available for projects already initiated under the 1949 law, but for anything undertaken hereafter it can be obtained only in communities that have an HHFA-approved urban renewal program in effect.

SUB-STANDARD neighborhoods like this in New Orleans are being changed into. . . .

Section 221 of the 1954 law offers insured loans on easy terms to build or reconstruct low-cost housing for families displaced by any governmental action—slum clearance, recreational areas, public buildings, street relocations, etc.

• **The job ahead**—James W. Follin, chief of HHFA's Slum Clearance and Urban Redevelopment Division, estimates that about 15,000,000 existing dwelling units are in need of rehabilitation. The amount of public funds alone that would be required to rejuvenate the neighborhoods in which these dwellings are located is estimated at about $9 billion. No one has attempted a realistic estimate of the amount of private money that would have to be invested to repair or replace the sub-standard housing. And, all this is over and above the nation's gigantic slum clearance goal. Follin has estimated the public cost of this at $15 billion—$3,000 per unit for 5,000,000 dwellings too far gone to rehabilitate.

It is the astounding rate at which sub-standard dwellings are sliding toward the rock-bottom slum category that has led to the emphasis on urban renewal and particularly the inducements to private enterprise to tackle the job.

• **Progress to date**—Urban renewal was at least in knee pants when the 1954 law was passed. Programs were under way in several cities, with notable progress in Kansas City, Mo., Providence, R. I., Cincinnati, Chicago and Los Angeles.

Most advanced were those programs in which a local homebuilders' association was an active participant. In this respect, Richmond, Va. came up with a shining example. It's local association spearheaded creation of a corporation composed of representative homebuilders, mortgage bankers, realtors and others—a corporation confident of making a profit for its stockholders out of rehabilitation work.

The corporation has ideal flexibility. It can borrow and lend; buy and sell property. It designed its own standard "homebuilders replacement house." Thus, the corporation can buy a condemned dwelling, demolish it and award a replacement house contract to one of its members. Among its varied ventures is a centralized design service and a scheme of consolidating projects to obtain economies by mass purchasing, labor and supervision.

Clarksville Tenn., population 22,000, has become the first city to receive approval of its seven-point program to qualify for the new federal aid. And, HHFA now is acting on programs submitted by New Orleans; Somerville, Mass. and Lewisburg, Tenn.

• Clarksville—a pilot plant

Plans are being completed for a slum clearance project, initiated under Title 1 of the 1949 act. Several areas have been delineated for urban renewal, with at least 1,245 dwellings classed as sub-standard.

Municipal officials in four states are looking to Clarksville for a demonstration of how to plan for slum clearance and urban renewal projects under the new federal law.

The seven-point program approved by HHFA showed the status of

REHABILITATED communities as builders, bankers cooperate on urban renewal.

Clarksville's legal and planning machinery to be as follows:

1. Its codes and ordinances, except for a housing code, met HHFA standards. Preparation of a housing code will begin shortly, with adoption guaranteed by June.

2. A thoroughfare plan already has been adopted. Land-use plan and zoning ordinance are scheduled for adoption next month. A community facilities plan is scheduled for study next year. A public improvements program is slated for completion during the coming fiscal year.

3. The Tennessee Planning Commission and the Clarksville Housing Authority have collaborated with city officials in delineating eight areas needing remedial action, based on analysis of an existing land-use map and a special survey conducted in 1950. HHFA recommended a neighborhood study to show approximate boundaries of the residential neighborhoods in which the areas requiring remedial action are located.

• New Orleans—a case study

Qualifying for federal assistance under the urban renewal provisions of the new housing law should be no problem for New Orleans. The city already had blazed a trail in urban renewal before the law was passed.

In less than a year, rehabilitation has been completed or is under way on 3,000 dwelling units—entirely at the cost of the owners. Target is 4,000 by the end of 1954 and 5,000 per year for the next nine years.

Next major target—for which the city is applying for a federal grant to make a survey—is a 55-square-block area housing 15,000 of the city's population. Cost of the survey has been estimated at $31,000. Federal funds are wanted for street improvements, playgrounds, schools and, if needed, public housing for resettlement of displaced persons. Though part of the area includes rock-bottom slum dwellings that will have to be removed, most of the program will be owner-financed rehabilitation of existing dwellings.

The city has made four other applications for small grants to spur various aspects of its comprehensive urban renewal program. One will be used for educational activities; another to provide personnel to act on complaints of unsatisfactory work by contractors on sub-standard dwellings.

• **History**—The city's Division of Housing Improvement and Slum Prevention was established by law in August, 1953, on recommendation of a citizens' study committee, chairmanned by businessman Clifford F. Favrot. Favrot now heads a 28-member citizens' committee, which helps to iron out difficulties pertaining to legal, financial, technical, education, relocation and similar matters.

The citizens' committee works hand-in-hand with the city Housing Division, of which Shelton P. Hubbard, a retired Army Colonel, is chief. His chief assistants are Verdun R. Daste, in charge of educational activity, and Thomas J. Heier, Jr., in charge of enforcement. The staff includes 18 inspectors plus clerical help.

G. Yates Cook, author of the pioneer Baltimore neighborhood rehabilitation plan (ENR May 28, 1953, p. 49) was engaged by the city to organize the program and set up the new city division.

New Orleans launched its new program in January with a "pilot plant" demonstration—a block of five houses. Here were the results:

• The houses that were secretly appraised before rehabilitation at $3,000 to $3,500, were afterwards valued at $9,000 to $9,500 by a different group of appraisers.

• Cost of rehabilitation ranged from $3,500 to $4,000 per dwelling unit.

• Rents prior to rehabilitation ranged from $15 to $20 per month; up to $42.50 after rehabilitation. (Only one family moved out.)

"In other words," Daste points out, "the cost was easily financed from the increased rents, which the tenants were more than willing to pay. This is a point we have been drumming into landlords ever since."

How the program works—

1. City Planning and Zoning Commission selects a neighborhood to be rehabilitated.

2. Housing Division then holds neighborhood meeting at which the plan is explained and owners advised what is expected of them. Meantime, Housing Division inspectors are checking every structure in the area and preparing reports on what repairs are needed to bring the dwellings up to standards established in the city's minimum housing ordinance.

3. Enforcement section of Housing Division sends notice of law violation to owners of sub-standard structures. Each owner is given opportunity for a hearing. If he disagrees with the inspector's findings, arrangement is made for him to visit the property with an inspector for a further examination of the points in dispute.

4. An order is issued to the owner, directing that repairs be made on the basis of the findings. A time limit, usually 30 to 120 days, but depending on the nature of the repairs, is set for getting the work done. Failure to comply subjects the owner to legal action. In cases where an order to vacate a premises is disobeyed tenants, too, may be taken into court.

• **Contractors' register**—Landlords are assisted by the Housing Division in financial planning and, also, in securing a contractor. The division maintains a list, currently numbering 135, of contractors who have signed a fair practices code. Inspectors make a weekly, sometimes even daily, check on all work going on. Contractors who violate any of the clauses in the fair practices code are dropped from the list.

Federal Buildings

Advisory group to study how government handles federal building projects

How the federal government handles its building construction and maintenance is under review by an advisory group composed of architects, engineers and contractors from private industry.

Peter A. Strobel, Commissioner of Public Buildings, said the study aims at construction improvements which will yield economies not only in building construction but also in the operation and in the maintenance of federal buildings.

Eight advisers make up the panel. They are:

- Architecture—Earl H. Lundin, of Carson & Lundin, New York, and George M. Ewing, Philadelphia.
- Engineering—Albert L. Baum, of Jaros, Baum & Bolles; Tage Pearson, consulting engineer, and Archie M. Erickson, of Wilcox & Erickson, consulting engineers, all of New York.
- Contracting—N. J. Pescatore, of John W. Ryan Construction Co., New York, and John J. McDermott, of Irons & Reynolds, Washington, D. C.
- Building management — Earle Schultz, former president of the National Association of Building Owners and Managers, Chicago. W. E. Reynolds, who retired earlier this year as Commissioner of Public Buildings, will serve as consultant.

"We are taking a long, hard look at our standards," Strobel said. "We are getting set, by searching for whatever improvements prove necessary, to meet the pressing needs of the future with economical and efficient construction practices."

The advisers will survey primarily design and construction standards which guide projects from drawing board to completion. They also will review construction policies and practices of the Public Building Service, which has responsibility for erecting federal buildings of all types, including courthouses, office buildings, hospitals, warehouses, border stations, and multipurpose buildings for postal, judicial, and office use.

Strobel has asked the group to examine PBS standards and practices in the light of good private practice. The advisers are expected to recommend private construction methods which point to economies. Results of the review are expected within four months.

L. L. Hunter, supervising architect of PBS, and chief estimator C. G. Palmer will assist the consulting group.

Longest Timber Arches

Nine laminated wood arches supporting the roof of the new 198x210-ft Union College Field House, Schenectady, N. Y., are the longest arches ever to be built of wood, though the span is 11½ ft short of a record. Measured along the arc the arches are 254 ft long, while the span is 190 ft. Each of the laminated members rises to a clear height of 64 ft and is 11x40 in. in section. They were fabricated by Timber Structures, Inc. The record for span is held by the 201.5-ft arches in the field house at Montana State University, Missoula. McKim, Mead & White, New York City, is the architect for the Union College Field House, Seredup-Elstad-Kreuger, New York City, the structural engineer, and McManus, Longe, Brockwehl, Inc., Albany, N. Y., the general contractor.

Pennsylvania Turnpike Gets A New Extension—Its Last

The final section of the Pennsylvania Turnpike was opened to traffic last week. The road now stretches 360 mi from the Ohio line to the Delaware River between Pennsylvania and New Jersey.

The final section to be opened was the easternmost 9 mi of the road and the Delaware Valley Interchange. It was part of the 33-mi Delaware River extension that was put under construction Nov. 20, 1952.

Turnpike Chairman Thomas J. Evans said the Delaware River extension cost a total of $65 million—nearly $2 million per mile. This compared with a per mile cost of less than $500,000 for the original 160-mi section of the turnpike, completed in 1940.

Engineer Center

New York City would be location of new building for engineering societies

If a recommendation voted unanimously Nov. 15 by the United Engineering Trustees is adopted by the societies that the Trustees represent, the long-discussed new engineering headquarters building will be located in New York City.

The vote was in the form of a request to the societies to "promptly direct their representatives in UET to proceed to acquire plans for early expansion in New York City as their headquarters."

Involved are the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers, whose representatives make up UET, and the American Institute of Chemical Engineers, which has asked to be included in any planning. The decision of the UET in favor of New York City followed investigation of other offered locations, particularly Chicago and Pittsburgh. Factors influencing the decision were the proved advantages of New York City as an engineering headquarters over many years, and possibilities of having other technical societies, most of which are quartered in New York, attracted to the new building as tenants, thus making it a true engineering center.

Probably the clinching factor, however, was the availability of an advantageous site, which Robert Moses, New York City Construction Coordinator advised could be made available by the city at an attractively low figure —in the neighborhood of $400,000 as compared to about $1 million for some earlier New York City sites that were looked into. The suggested site, about 250 ft square, is on property contemplated for slum clearance, diagonally across the street from the city's new Columbus Circle Coliseum, now under construction.

Mr. Moses and various city, commercial and industrial organizations in New York became interested in the problem of a new engineering headquarters building through the efforts of a committee of local members of the four engineering societies. ASCE members were Richard E. Dougherty, Wallace Harrison, Malcolm Pirnie, Jr., and Kirby Smith.

Should the plan to purchase and develop the Columbus Circle site be carried out, present thinking would produce a building of seven stories with a gross floor area of 200,000 sq ft.

G. Donald Kennedy

Cement Official

G. Donald Kennedy elected new president of PCA

New president of Portland Cement Association is G. Donald Kennedy whose election took place at the association's recent annual meeting in Chicago. Kennedy succeeds Carl D. Franks, retiring after 38 years with the association.

Long prominent in the highway and automotive safety field, Kennedy joined PCA in January, 1950, as consulting engineer, and was appointed executive vice president in May, 1953.

A civil engineering graduate of the University of Michigan, he brings to his new post nearly 24 years of experience in the fields of structural, municipal and highway engineering.

Ever since his appointment as Michigan's Highway Commissioner in 1940, Kennedy's interests and activities have had a wide range. Besides serving as a consultant to a number of states on development of long-range highway programs, he has been president of the American Association of State Highway Officials (1942); vice president for highway development, Automotive Safety Foundation (1943-50); vice chairman of the President's Interregional Highway Committee (1941-45); and chairman of the Committee on Postwar Construction, American Society of Civil Engineers (1943-45).

During the war, he was a member of the Highway Traffic Advisory Committee to the War Department and in 1946 received the George S. Bartlett award for "Outstanding Contribution to Highway Progress".

Seaway Officials Rule Out Big Locks

Both U. S. and Canada plan to build locks about the size specified as the minimum in U. S. authorizing legislation

Canada and the United States appear committed to build parallel facilities for the St. Lawrence Seaway on both sides of the river in the International Rapids section. And both intend to construct locks far smaller than shippers would prefer.

Lewis G. Castle, head of the U.S. government's St. Lawrence Seaway Development Corp., announced last week that he had directed the Army Engineers to design the three locks on the American side, 800 ft long by 80 ft wide by 30 ft deep over the sills. Congress specified that the locks be built at least that large in the authorizing law it passed this year.

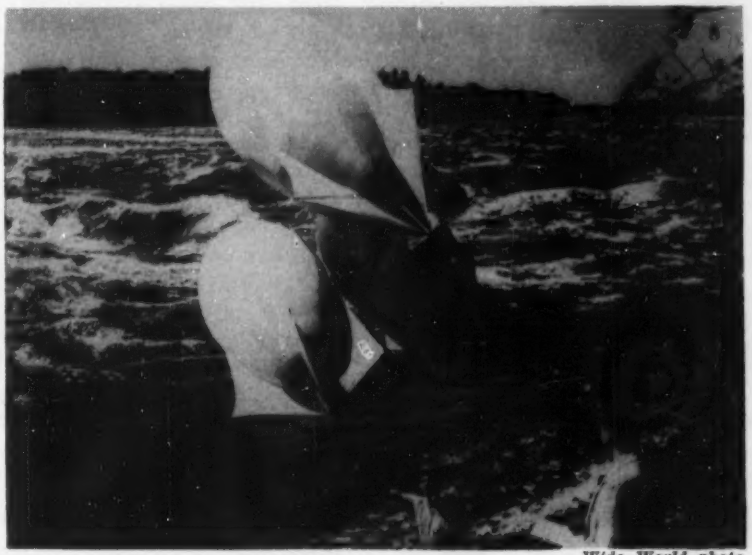
Castle gave two reasons for the decision. Canada has announced that it will build locks of about that size in the all-Canadian section further downstream between Massena, N. Y., and Montreal. And the U.S. corporation has doubts, Castle said, that it could make its locks any bigger without exceeding the $105 million voted by Congress for the project.

Canadians say there is no purpose in building the St. Lawrence locks any larger than the locks in the Welland Canal, which bypasses Great Lakes shipping around Niagara Falls, between Lake Ontario and Lake Erie. The Welland locks have the same dimensions as the minimums stipulated in the U.S. law, except that they are a little shorter.

Shipping interests take a quite different viewpoint. The Maritime Commission, the Navy and private shippers have pleaded for larger locks—particularly for greater width. World War II taught them that the way to carry greater tonnage most economically is by increasing the beam of cargo ships.

Canada's St. Lawrence Seaway Authority last week invited bids to start construction of a canal and lock around Iroquois Dam at the upstream end of the rapids. The U.S. Seaway Corp. and its construction agent, the Corps of Engineers, will open bids Dec. 16 for a 4,000,000-cu yd canal excavation job at the downstream end of the rapids.

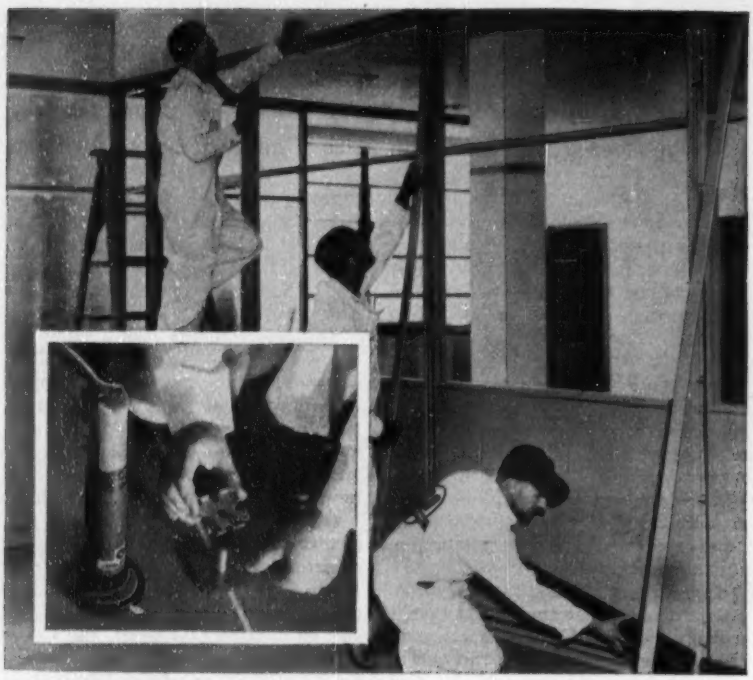
The successful bidder will excavate an upstream section of the Long Sault Canal. Work will progress downstream, by sections. About four excavation contracts are contemplated for the eight-mile stretch of the Long Sault Canal.



Wide World photo

Mapping River-Bed From the Air

Meteorological balloons, called Kytoons, are being used by a Canadian mapping crew to sound the river-bed of the St. Lawrence in the Long Sault Rapids area. Rough water made it impossible to use small boats and echo sounders for the job. Lead weights suspended from the Kytoons by lengths of piano wire make the soundings. Depths are computed from instrument observations on the Kytoons. The hydrographic survey of the river-bed is a preliminary to start of construction on the St. Lawrence Seaway and power projects in this area.



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CITY BY CITY

20,000 Dwelling Units

New York City—New York City's Housing Authority is seeking authorization for construction of more than 20,000 additional low and middle-income dwelling units. An estimated $300 million will be available for the projects, stemming from federal, state and city guarantees or loans.

The first step on the calendar of the Board of Estimate is a resolution certifying the need for low-rent housing. Once this is passed, the projects will get further processing by the Public Housing Administration.

An application for a preliminary loan from the federal government for construction of 8,000 low-rent dwelling units already has been approved by the Board of Estimate. The 8,000 units would cost about $112 million. In order to build 4,000 more low-rent units, the authority is counting on a $56-million loan from the state.

For tenants in the middle-income brackets, 8,000 to 9,000 slightly more expensive units would be built with funds guaranteed by the city.

The proposed projects probably will not be completed for four or five years. The U. S. quota for new dwelling units built with federal funds during 1955 is only 35,000. But the New York City Housing Authority declares that it alone needs 25,000 units to meet relocation requirements.

City Within a City

Farmers Branch, Tex.—Literally a whole new city—a $30-million residential and shopping center development called Valwood Park—is slated to go up in Farmers Branch, a century-old community near Dallas.

The planned community will be developed on a 500-acre tract by Cato Corp., Dallas. It will have 2,000 homes, an expansive shopping center, parks, schools and churches.

Work already is under way on the grading of sites for the first installment of 400 homes. Construction of these units will begin in January and should be completed early in the spring. The shopping center, covering some 25 acres, will get a spring start.

New Flood Fighters

Pittsburgh—Twelve Pittsburgh suburbs are joining forces in a flood control commission designed to tame 25-mi-long Turtle Creek. The normally placid creek caused $5 million

damages when it last spilled over its heavily industrialized banks on Oct. 15.

Turtle Creek, with a 146.5-sq mi watershed, empties into the Monongahela River just above the southeast tip of Pittsburgh proper.

For the past 15 years the creek has been the subject of numerous engineering studies, including two by the Corps of Engineers. One report now in the hands of the new flood control commission shows that under storm conditions the creek spouts off water at the rate of up to 17,500 cu ft per second—far too much for its shallow channel to handle without overflow. Under flood conditions the flow is up to 200 times normal dry weather flow and several times more than ordinary storm flow.

Start of a Span

Kansas City, Mo.—An appropriation of some $1.6 million by the city council has cleared the way for a start on construction of the $13-million Broadway Bridge. The project will be built over the Missouri River to the municipal air terminal and U. S. Highway 71.

A $932,300 contract for three caisson piers has been awarded Guy H. James Construction Co., Oklahoma City, and Cunningham-Kiewit Construction Co., Omaha. Another contract—for $650,000—went to Howard, Needles, Tammen & Bergendoff for engineering and financing plans and engineering services.

Some $25,000 of the appropriations will go toward borings and subsurface studies and for laboratory analysis of materials and products to be used on the bridge.

Funds for the initial work will come from a recently sold $13-million bond issue. The bonds will be paid off by tolls.

Gambling Pays Off

Las Vegas, Nev.—The boom in resort hotel construction is setting many a sturdy citizen to wondering if gambling, after all, isn't the way to get rich quick.

Nevada's legalized gambling industry certainly is a major factor in the rush to invest in Las Vegas hotel property—and right now a total of $45 million is going into construction of 10 new luxury hotels scheduled to open next year.

From the point of view of the man behind the stick, Nevada's gambling

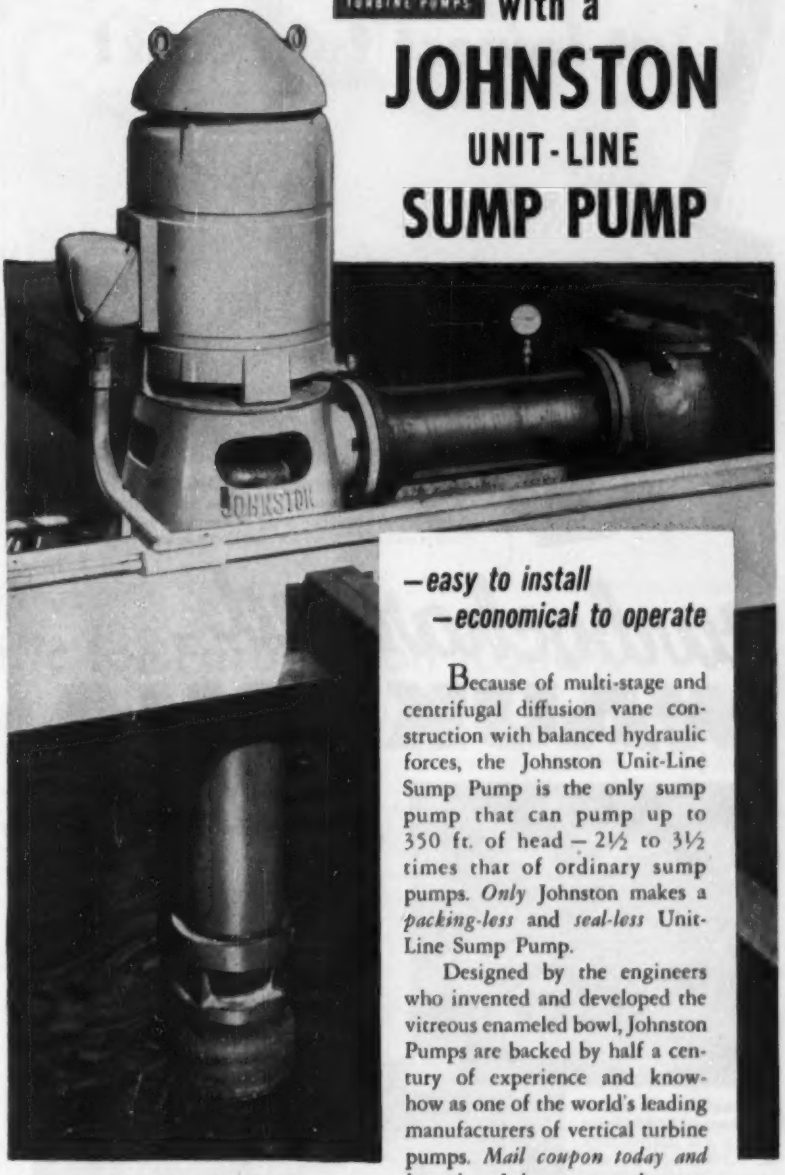
(Continued on page 22)

Heads up to 350 ft.

JOHNSTON TURBINE PUMPS

with a

JOHNSTON UNIT-LINE SUMP PUMP



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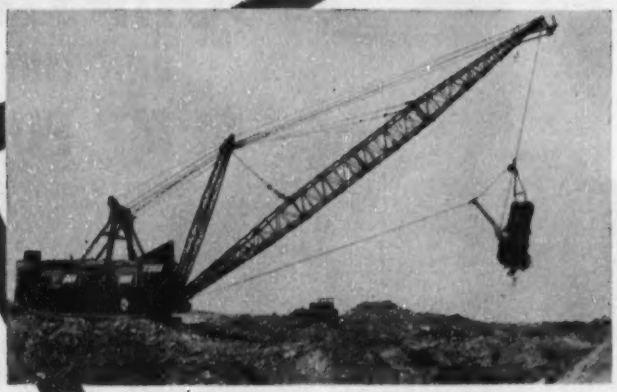
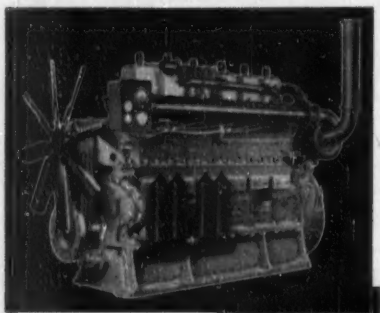


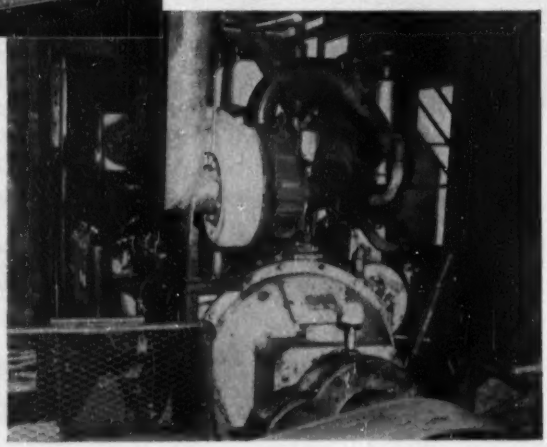
Penbrook Contracting Corp., Camp Hill, Pa., use this Waukesha Turbocharged 2894 cu. in. Diesel powered 5W Bucyrus-Monighan drag line with 6-yd. heavy-duty bucket and 125' boom for coal stripping and excavating.

turbocharged
WAUKESHA
Diesels



Mr. William E. Crum, President, Penbrook Contracting Corp. says: "One of the best engines we have ever owned." Outstanding characteristics of this big turbocharged Waukesha LRDBS Diesel are lively acceleration, clean burning, prompt starting, a tremendous reserve of power and great overall economy. Send for Bulletin 1606. 259

Turbo-Supercharged Waukesha LRDBS Diesel (*above and right*)—2894 cu. in., 8½-in. bore and stroke; develops 570 hp max. at 1200 rpm; burns all standard "high speed fuels"—powers drag line (*top*) owned by Penbrook Contracting Corp.



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industry is paying off. It's said now that even banks and insurance companies recognize the industry as a sure bet.

Conservative financial houses today are helping finance construction of new Las Vegas hotels. Entrepreneurs who would provide shelter and sanctuary for the crowds who flock to the gaming tables aren't having too much trouble finding financial backers.

The more difficult problem is securing a state gambling license. Only one has been granted in the last four years. And the state commission requires that construction of hotels and casinos be at least one-third complete before the license application is considered.

Center of Learning

Washington, D. C.—Early next year construction is expected to start on a four-story research and teaching center at George Washington University. The building—to be known as Tompkins Hall of Engineering—will be a gift to the University by Charles H. Tompkins, Washington, D. C. contractor.

The new 36,400-sq ft limestone center will be a modern loft-type structure with flexible partitioning walls—and the first completely air conditoned building on the campus.

The building will contain 14 specialized laboratories and 13 classrooms, plus conference rooms, offices and several small individual laboratories for graduate students. Among the laboratories will be rooms for research and testing in concrete, fluid mechanics and instrumentation.

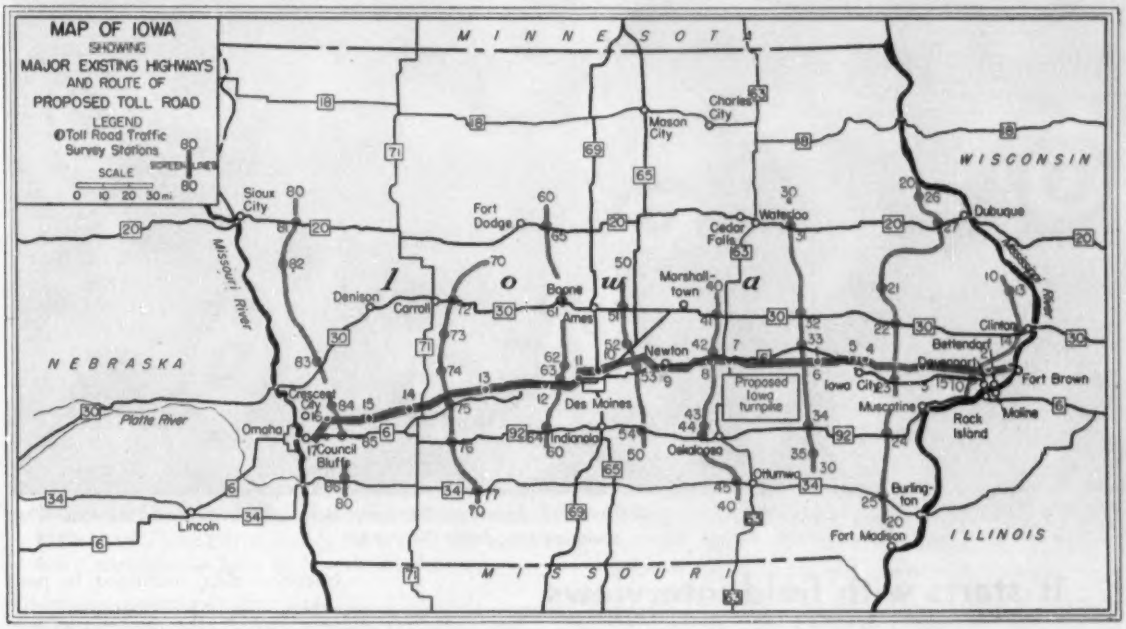
Tompkins' firm (Charles H. Tompkins Co.) will build the center. The architect is Faulkner, Kingsbury & Stenhouse, Washington, D. C.

One Slum Less

Los Angeles—Redevelopment of the 30-block Bunker Hill slum area passed one more hurdle when the city council approved application for a $33-million loan to the federal Housing and Home Finance Agency to carry out the project.

The project, which would relocate some 11,000 residents in the area, calls for the land to be cleared and sold at an estimated $19 million to private enterprise for development.

The city's planning commission, already at work on the project, is expected to complete the master plan within a year. The 136-acre area is being planned for residential, commercial and light manufacturing zones with a 13-story height limit.



Forecasting Traffic for Future Toll Roads

It's a job for a specialist. Here's a case study of what Coverdale & Colpitts did for the projected Iowa Turnpike

J. P. Chamberlain
Associate Editor

Somewhere along the highway, sometime this fall, your car may be flagged to a stop. A polite young man armed with a clipboard will ask where you are coming from and where you are going.

That's all, as far as you are concerned. Yet this data on your trip, and thousands of others, will help form the basis for estimates of future road needs and thus help decide how millions of dollars will be spent. The young man is the first link in a complex process that provides these answers.

Traffic surveys may serve many different purposes: Determine whether highways need widening or new roads should be built; decide whether there is enough traffic to pay for a toll bridge or toll tunnel; check the probable sales volume of a projected shopping center, or simply to keep abreast of changing traffic trends. But the most complex survey of all is the feasibility study that must be made in a natural traffic corridor before a decision can be made to build a toll road.

That's one specialty of the many-sided engineering firm of Coverdale & Colpitts, on whose say-so investors have cheerfully bought more than $1.5 billion of turnpike bonds since the first postwar turnpike—the Maine Turnpike—was financed in February, 1946. There are other firms in this field, and some of them do a lot of traffic survey business. But most of the competition also does civil engineering work, a point which C&C considers as potential conflict of interest.

• **Walking the tightrope**—A toll road study must estimate flow of traffic over a long future period. It should not be so conservative as to discourage a worthwhile project; yet it must not overestimate future traffic.

It is the firm's boast that none of the hundreds of traffic studies it has made for toll projects financed by public revenue bonds has ever been overoptimistic. None of these projects has ever gotten into financial trouble.

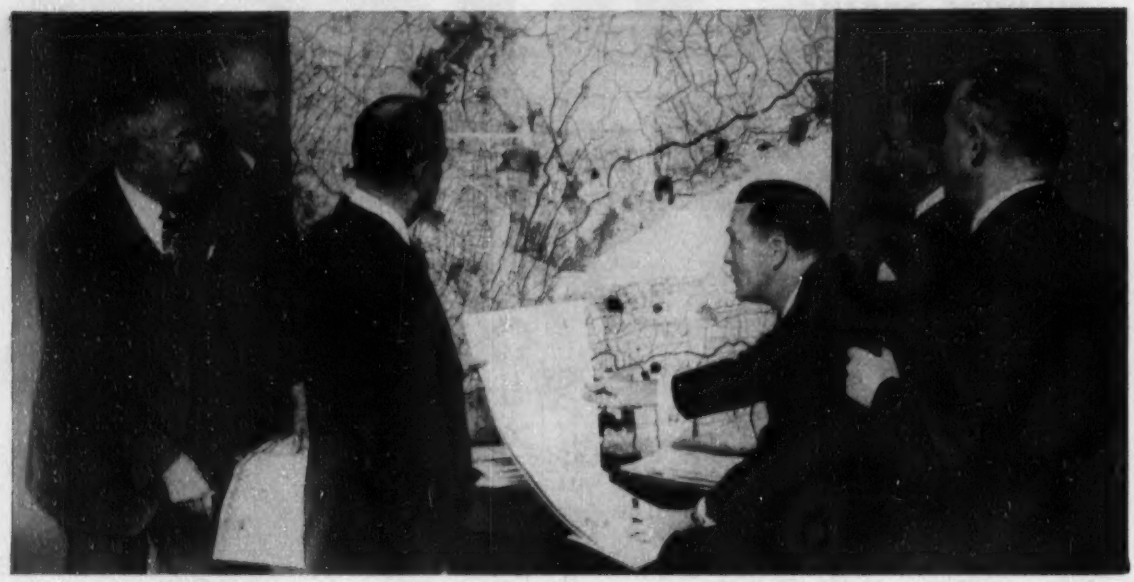
Coverdale & Colpitts feels it has not been too conservative, either. It's true that the initial study for the New Jersey Turnpike far underestimated actual traffic. But a recent review of traffic studies made prior to the Korean war indicates that actual traffic during and since that boom period has averaged only 18% above the estimates.

• **Experience teaches**—In making studies like this, experience helps a lot. C&C has made over 400 highway traffic studies, dating back to the late 1920's. Even before that, the firm was expert in operating problems of railroads and rapid transit systems. In fact, transportation work of one sort or another made up about 80% of the firm's work until about 1935, when the depression and the Securities Acts led to a big development of its business evaluation studies.

All that is another story, however. Most of C&C's highway traffic studies have been for toll bridges. It made the survey for the first bridge ever financed by toll revenue bonds—the Louisville (Ky.) bridge (built 1929). Since then, over a hundred highway traffic projects of one sort or another have been financed by revenue bonds.

• **How it's done**—Every turnpike project, of course, has its own special conditions. But here is how Coverdale & Colpitts did a feasibility report this

(*Continued on page 24*)



SOME C&C PARTNERS—Six partners who work on traffic problems discuss possible future developments in New York area. They pool their combined experience on surveys. George Burpee, senior partner, holds the pointer.

. . . It starts with field interviews

year and in 1953 for the proposed Iowa Turnpike:

Back in May, 1953, Sam Brown, one of the partners, went out to Ames, Iowa, to discuss a study with the State Highway Commission. The projected turnpike was to run for about 300 miles across Iowa from the Mississippi to the Missouri. After a day's discussion, the firm was engaged. (A formal proposal and contract followed later.) C&C was to supervise collection and coding of traffic data, then take over the data and compile its report.

• **And so to work**—Within a few days, a corps of college students was hired to make the origin-and-destination surveys, got some brief training for this simple assignment. In June, the surveys began.

Forty-one traffic survey stations were located to intercept potential Turnpike traffic, which would be moving east and west, or diagonally across Iowa. The stations formed eight north-south "screen lines" (map, page 23).

The survey crews began at screen line 10, manning three stations simultaneously, then moved west across the state as the summer went on. At most stations, the interviews went on 16 hours a day for four days, including a Saturday or Sunday, a Friday or Monday, and one other weekday. (The Fourth of July and Labor Day weekends were not included.)

For the other eight hours—10 p.m. to 6 a.m.—traffic passing each station was counted manually and classified. For instance, Iowa passenger cars were Class 1, out-of-state passenger cars Class 2. There were five classes for different sizes of trucks, and a class for buses.

To measure summer traffic over a longer period and thus check on unusual fluctuations, portable automatic traffic counters were set up at each station and operated around the clock for 14 days or longer.

• **Machine work**—Meanwhile, machines at the Highway Commission headquarters in Ames were beginning to record the coded data the field men supplied.

Geographic zones were set up for the major cities and all the counties, for larger areas in the neighboring states, and for the other sections of the U.S. Code clerks assigned a zone number to the origin and to the destination of each trip as shown by each interview. Machine cards were prepared for each interview, to be punched with the origin and destination, class of vehicle, and survey station number.

Through processing these cards, a car or truck that passed through more than one of the screen lines could be eliminated, the trip being assigned to the easternmost screen line through which it passed. (For purposes of a turnpike study, it makes no difference which direction the vehicle goes.)

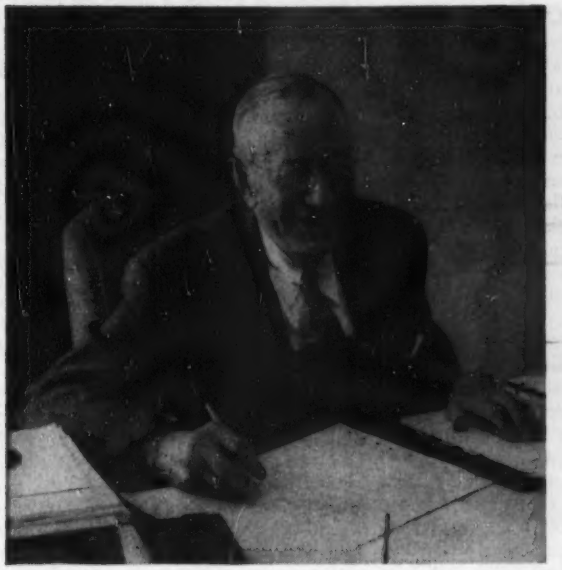
Interview data continued to pour in until early September, when the surveys ended. By the end of the month, the interview data was coded. Two months of card-punching followed. Then the data passed to C&C's office in New York where we'll pick it up later.

• **Comparing times and distances**—By August, the Highway Commission and its consulting civil engineers (Howard, Needles, Tammen, and Bergendoff), had started field reconnaissance for route location. At the same time, Highway Commission and C&C engineers were working out another vital set of data: time and distance figures on all existing routes competitive to the proposed turnpike, and along potential feeder roads in Illinois and Nebraska.

Crews drove the roads under different conditions and at different times—including urban rush hours—to get average driving standards and average vehicle operating costs. Altogether, some 10,000 miles were driven in these studies through the summer and fall.

Special attention was paid to truckers. C&C engineers talked to truck people who operated in Iowa. They studied routes and schedules, discussed operating problems and costs, rode trucks from Chicago to Iowa cities and on through to Omaha.

• **Toll schedule**—After time-and-distance comparisons between the projected Turnpike and existing roads



MANAGING PARTNER—George H. Burgess, 80, handles the firm's administration from its New York office.

JUNIOR PARTNER—Sam Brown, who handles highway surveys and industrial work, arranged and directed Iowa job.

were complete for about 10 key movements, a toll schedule was worked out to assure close-to-maximum revenue, based on comparative savings of time and distance to Turnpike users.

• **Where to put it?**—Now a series of interesting haggles took place between the traffic engineers and the civil engineers. Fixing a turnpike route is a process of balancing between three major considerations, some of which may be in conflict with each other: (1) get as close to cities as possible, to pick up maximum traffic; (2) keep land-acquisition and construction costs to a minimum; (3) keep the road distance as short as possible. By a process of give-and-take, the route was worked out.

In January, C&C engineers sat down at Ames with the Highway Commission and made final decisions on the route. Originally, it had been planned to start the Turnpike at a point near the "Quad cities" of Davenport and Bettendorf (with Rock Island and Moline across the river in Illinois).

"But by several weeks before the meeting," says Sam Brown, "our time-and-distance surveys had conclusively shown us that the Turnpike should go to the Mississippi in a fairly straight line north of the Quad area, and cross the river on a new toll bridge. Our studies showed us that this would save drivers between points east of the Mississippi and most Iowa cities up to 45 minutes. And our traffic count indicated that the bridge could not only earn $475,000 a year—enough to pay its own way—but would bring in several times that amount in extra turnpike tolls."

"So I phoned Ed Koch, the Commission's chief engineer, who suggested that the consulting engineers should estimate the cost of the bridge. By the time we sat down at our January meeting, the civil engineers had a cost estimate of $7 million, and we had a revenue estimate. Within an hour, the Commission had decided to add the bridge."

• **Translating the data**—Now let's go back to the traffic data itself, which began to arrive at C&C's office in New York by September. There, three engineers heading a staff of about a dozen sub-professionals started to translate the data into an estimate of what total 1953 Turnpike traffic would have been, if the pike had actually existed.

• **The first step**—First step was to expand the data into annual volume over the routes covered by the stations. The surveys had actually counted 448,000 vehicles passing through the stations during the four-day or two-day operating periods.

From the data, average weekly summer traffic volume at each station was estimated for each class of vehicle. But it's annual traffic that tells the story for turnpikes, not heavy summer volume. To expand the average summer week to annual volume, C&C engineers had a mine of information: the traffic counts kept for more than 15 years by the Highway Commission through permanent automatic recorders throughout the state.

Furthermore, in November the Highway Commission people went back to screen line 20—the key line because it caught all the cross-Iowa traffic, and thus supplied more revenue than all other lines put together. They took a special four-day manual classification count. The purpose, of course, was to find out the volume and class distribution of traffic during this period, when there was little vacation driving.

The final result was an estimate that 12.7 million trips had been made in 1953 that might possibly have used the Turnpike if it had been in existence.

• **Second step**—Now, how much of this 1953 traffic would have actually used the Turnpike?

Obviously, a driver will choose a turnpike route that saves him both time and distance, if the savings are enough to make it worth while for him to pay a toll. But some drivers can also be expected to choose a route that will save time, even though they may have to drive further to use the Turnpike. Elimination of stop-and-go driving on the turnpike can cut gas costs besides saving time. Many thousands of drivers are willing to pay from 2¢ to 4¢ per mile on the northern part of the New Jersey Turnpike without saving any distance.

So the time and/or distance advan-

(*Continued on page 26*)

. . . It ends with a financial report

tages of the proposed turnpike route had to be calculated for every "potential" trip shown in the traffic survey. In the case of the Iowa study, this kept 15 C&C people busy in the New York office from the start of February to the end of May.

Each trip was compared in terms of travel time and distance over existing roads with the travel time and distance by the best route combining use of present highways and the Turnpike. Then the time and/or distance advantages of the Turnpike were compared to the proposed toll charge. As an offset against the toll charge, it was assumed that Mr. Average Driver's out-of-pocket car operating cost is 3¢ per mile. In addition, the engineers figured from 3¢ to 3½¢ per minute as an average time saving for passenger cars.

By now, diversion estimates for each class of vehicle were emerging, and also for each zone-to-zone trip considered potential to the Turnpike. In estimating truck diversions, Iowa's poorly aligned and narrow roads were offset against the fact that there were practically no serious grades and not much congestion on existing highways. That kept the diversion factor for trucks fairly low.

• **End of the search**—The result was an estimate that out of 12,700,000 potential trips in 1953, about 2,578,000 (20.3%) would have used the Turnpike. Toll revenue from these trips would have been a little more than $6 million.

The survey also estimated that the average Turnpike trip in 1953 would have been 122 miles. About 21.6% of movements would be substantially for the full distance. That is a much higher ratio, for example, than the New Jersey Turnpike, where the average 1953 trip was less than 40 miles, with only 6% of the trips actually going the whole way and only about 15% moving between the four northern interchanges in the New York area and the southern end.

The practical use of this bit of information was to indicate the vital importance of service areas for the Iowa project. More travelers would have to stop on the Turnpike for gas and meals, and there would be more revenue from these concessions than might be expected from experience with existing turnpikes.

The fact that diversion estimates were available by screen lines also turned up some extremely practical suggestions. The estimates indicated that Interchange would have produced only $7,200 of revenue in 1953, only a fraction of the revenue needed to justify an interchange. The figures also showed that, for maximum traffic service and revenue, the western end of the Turnpike should not be at Crescent City but at Council Bluffs. These and other changes were estimated to add another $305,000 to hypothetical 1953 tolls.

• **The 1958 estimate**—Since 1958 would be the earliest possible full year of Turnpike operation, the next step was to project the 1953 estimate to 1958. Coverdale & Colpitts estimated growth as at least 4% annually from 1953 to 1958. This was partly based on statistics on population, gas consumption, and car registration in Iowa and neighboring states, but even more on traffic growth data collected by the Highway Commission.

• **Induced traffic**—C&C estimates were for 14% induced traffic, producing about $1.1 million in 1948, plus about $500,000 more in 1959 and 1960. This low estimate was based on the fact that the Turnpike's advantages would have less extra effect in inducing more trips by heavy-truck operators and out-of-state drivers than by Iowa motorists. Yet the first two classes were expected to produce most of the basic toll revenue.

The net result was an estimate of 1958 toll revenue of $8,843,000 in 1958, increasing 4% each year till 1964. After that date, to quote the C&C study, "prudent long-range forecasting requires recognition of the larger base traffic volume and indicates that the annual growth rate should be progressively decreased." A fixed increment—equal to the gain of 1964 over 1963—was estimated for 1965 and following years. Added to this was a concession revenue estimate of $930,000 for the first year, increasing to $1,061,000 in the second year, and continuing thereafter at 11% of toll revenue.

• **More changes**—With all this in hand, the interested parties met in New York City in June. Sam Brown tells what happened: "John Butter, the Commission's new chief engineer, soon became convinced that the western end of the Turnpike would have to be re-surveyed. So the consulting engineers and the Highway Commission ran a new line for the western terminus. As soon as we had a line, C&C re-estimated toll revenue for that section."

"From then on till mid-July, it was a question of putting the major totals together to see whether the turnpike was actually practical. Howard, Needles estimated total project costs (construction, right of way, engineering and design, etc.) at $158.4 million. We concurred with them in an estimate of $21.6 million for interest during construction and financing costs, net of earnings on invested funds. This included a provision for three years' interest before the project could start earning. We assumed the borrowing cost at 3.5%."

"In other words, the turnpike agency would have to sell a $180-million bond issue. And now we get to the payoff on our traffic estimates. Our firm estimated that $7,773,000 would be the net revenue available for debt service in 1958, after deducting operating and maintenance costs of $2 million in that year."

The C&C report showed that this first year net revenue would cover interest 1.23 times. With normal traffic growth and some induced traffic in the second year of operation, the C&C survey showed an interest coverage of 1.38 times, and 1.49 in the third year. It concluded that the project could be self-liquidating in 21 years.

However, Wall Street people consider a 1.23 interest coverage to be somewhat thin for the first year. To them, 1.40 to 1.50 is a more customary standard. Accordingly, the report concluded that the Iowa Turnpike revenue bonds, while perhaps salable solely on the basis of the project's revenues, could be marketed more readily and on better terms if some additional revenue could be pledged on an "if and when needed" basis during the early years of operation.

There had been some talk of calling a special session of the legislature to consider a turnpike bill. But by the time the formal report was ready the governor had decided against it. The project will now have to wait till the legislature meets in 1955.

This is the story of a traffic feasibility survey. Along with the surveys and costs estimates of the civil engineers, it provides the indispensable basis for any toll road project. If a toll road is to pass from the dream stage to reality, it must be sold not only to highway officials and state legislators, but to underwriters and investors. All of these interests demand some protection against possible future developments. And that is what a traffic survey by a consulting engineer like Coverdale & Colpitts helps to provide.

Plans revealed . . .

Radar Platforms: A Challenge to Builders

They'll be:

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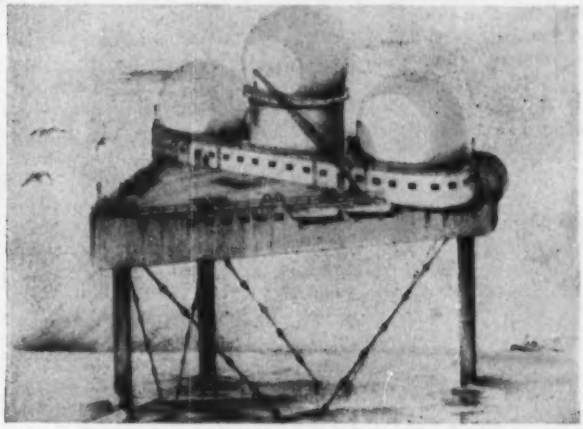
- **Towed to site, jacked aloft**
- **(and advertised soon)**



PREVIEW of offshore platform as shown in artist's conception.

Cmdr. John J. Albers, CEC USN
First Naval District
Boston, Mass.

"Texas Towers"—nickname for the Air Force offshore radar platforms to be built along the New England Coast—have received a tremendous amount of publicity in recent months. Military purpose and capabilities of these towers cannot be discussed, for security reasons. But for the construction man there remains unclassified a broad range of new design and field problems, all challenging to both ingenuity and courage.

A small number of towers will be built on shoal areas from off New York City to off the Newfoundland Coast. No other shoal areas suitable for the design are known along the remainder of the Atlantic Coast. Each tower will be of sufficient size to support electronic gear, provide a helicopter landing area and house the crew.

Preliminary design was completed last month; final design is under way with a view toward advertising and award in the near future.

• **Ice no problem**—The sites are in hurricane areas, so the design wind velocity is 125 mph. Floating ice is not a problem, although spray might freeze on the tower and later drop into the water. Such ice would cause only increased wind resistance or possible scour at the water line, both of which are minor considerations. Ocean temperatures will prevent ice formation in the wave area.

• **Waves are critical**—Wave-action criteria were much more difficult to determine, due to the lack of reliable data. Numerous reports by witnesses of gigantic waves must be depreciated for design purposes because of questionable measurement methods. On the other hand, theoretical wave studies backed by limited model studies and properly measured observations indicate the possibility of waves over 100 ft high. However, such waves would be of relatively short length and, being unstable, would travel only a short distance.

The oceanographers advised that both non-breaking and breaking waves probably would result from a prolonged northeasterly storm or from a hurricane stalling in one spot some distance from the sites. These waves would build up to 60 ft in height. Such waves probably would not be accompanied by winds of hurricane force at the towers. A hurricane hitting the site could reasonably build up 35-ft breaking waves, considering the locations of the sites and the adjacent ocean bottom. Thus, it was decided to use design criteria as follows:

Wind vel. mph	Waves ht. test	Wave condition	Design stress, allowable increase
70	60	Non-break.	None
125	45	Non-break.	33%
125	35	Break.	50%

In most cases the 35-ft breaking wave and 125-mph wind is the determining load. However, in deciding the tower positions on the shoals, consideration has been given to wave refraction and diffusion (due to the shoals' shapes) to minimize wave effects.

• **Platforms above waves**—The bottoms of platforms of this type must be above the maximum wave. A 60-ft wave rises about 36 ft above the still water level and, adding a possible 6-ft tide, we would get a 42-ft rise. Allowing for possible splash and a factor of safety, it has been decided that the platforms will be built about 67 ft above mean water level. With such a height, a 96-ft wave would just clear the bottom at high tide.

• **Forces on foundations**—Little data could be found on the forces exerted on relatively small cylindrical surfaces by large waves in the open sea. To compute the forces exerted by non-breaking waves, "drag" and "inertia" force components were used. In this procedure, the velocity and accelerations of the water particle are found for the case of an undisturbed wave. Then the pile or other object is introduced into the problem and it is considered that the undisturbed velocities remain constant and a certain force is required to reduce the particle acceleration to zero at the pile surface.

For breaking waves experimental data were applied to determine forces.

It was found that the total force exerted by a given wave on a pile or caisson is not affected appreciably by the depth of the water within reasonable limits. Also, it was noted that the center of pressure of the wave force is slightly below the water surface in any depth of water.

• **Borings covered two sites**—As compared to our knowledge of soil conditions on land, very little is known about the composition of the ocean floor. At one site, where the water is 40 ft deep, diver investigation revealed a solid granite formation overgrown with 10 ft of kelp. At two other sites, with water depths varying between 65 and 80 ft, borings revealed extremely

(*Continued on page 28*)

. . . Texas Towers to be triangular

hard sand requiring an average of 200 blows per ft with a drill rig. Large deep-seated clay pockets were found in some of the core borings. These borings, taken by use of a barge-dock section as a working platform, were covered in ENR Oct. 14 p. 38.

• **Too deep for borings**—At the remaining sites, the water depths preclude the use of such a rig, and, in the absence of any known economical methods of making borings, the required data will be obtained when the completed structure is delivered to the site for erection. Design will be based on assumed geology with provisions made to accommodate unexpected bottom conditions found after the structure arrives. One site has about 190 ft of water over what is believed to be sand of great thickness whereas another site has about 130 ft of water over boulders of unknown thickness.

It should be noted that all bottoms for the Texas Towers are quite different from the mud in the Gulf of Mexico, the only place where offshore oil drilling platforms have been built to date. These structures come nearest to being a precedent for Texas Towers.

Many known designs for constructing offshore drilling platforms have been reviewed; platforms that have been successfully constructed, those that have been only designed and those that are only at the patent stage.

• **Short construction season**—Weather conditions at the Texas Tower sites are much more severe than in the Gulf. The safe construction season in the North Atlantic extends only from May 1, the end of the period during which strong easterly and northeasterly storms are prevalent, to Aug. 10, the beginning of the hurricane season. Also, during this short, so-called safe period, only ten days can be expected with waves less than 4 ft, the maximum permitting use of normal floating construction equipment. These weather conditions alone ruled out all those designs requiring extensive work at the construction site—even schemes successfully used in the Gulf.

At the two sites where borings were made, it was found that currents, up to four knots and extending to the bottom, existed. The currents rotated through 360 deg daily and flowed continuously. Thus these currents ruled out certain floating designs requiring rigid control during sinking operations.

It became evident that a structure which could be constructed ashore, floated to the site and erected on location with a minimum of work there, and with a minimum of floating equipment, offered many advantages.

• **Competition expected**—Several concerns have developed jacking systems for lifting a floating structure up vertical legs, the most widely publicized of those developed to date being owned by the DeLong Corp. of New York. Also it is anticipated that entirely new schemes may be developed for Texas Towers. Therefore, the scheme of constructing a floating structure on-shore to be jacked up supports into place at the site, was selected. Such a system is economically feasible for the depths of water and bottom conditions at the Texas Tower sites; it is not limited to any size or shape of platform and is open to full competition. The latter point is essential in government work.

• **Three-legged support**—It was found that waves, of the size selected for the design criteria, exert terrific forces on any supporting element in the water. This led to the choice of three supporting legs—the minimum number that will support a platform without cantilevering. Also, to reduce the bending moment in the legs to an acceptable figure, design calls for prestressed diagonal tension members that can be installed without underwater work. To achieve legs of minimum diameter, heavy steel columns filled with reinforced concrete are specified. These legs are designed as fixed columns at the top in the platform and as unfixed at the bottom except at the rock site, where they can be securely seated. The legs will be 10 ft in diameter and, at the sand sites, they will be belled out at the bottom to keep the horizontal and vertical reaction of the soil within reasonable limits.

In design of the tension bracing, both links and wire cable were considered. Wire was rejected because of its low allowable stress after a large number of reversals and because of preservation problems. Links comprised of both plates and forgings were considered, the latter being selected because of their higher allowable stresses after repeated reversals of stress. Upon installation the diagonals will be tensioned with jacks at the top to avoid any unnecessary motion due to slackness. They are connected to a common link at points of intersection intentionally located below normal water level.

Protection of these structures against corrosion is a major consideration. It has been agreed that painting combined with cathodic protection is ample for all surfaces except those in the wave area in the vicinity of the normal water surface level. In this area the columns will be clad with nickel-copper alloy and the diagonals will be constructed of solid forgings of the same alloy.

At sites where loose-flowing sand is existent, erosion of the legs and diagonals at the ground line may be a problem. To protect against scour, rip rap will be used where required.

• **Triangular platform**—An equilateral triangular-shaped platform is suggested but not required by the structural decision to use three supporting legs.

(*Continued on page 30*)

How Supplies Will Get to Texas Tower

Advantage has been taken of the solutions evolved in the Gulf in providing logistic support to the offshore drilling platforms. However, longer distances from the beach supply points, longer periods of rougher weather, snow and ice, and extended periods of fog, all make support of Texas Towers a more difficult problem. Therefore, anticipating extended periods when no supplies can be delivered due to weather conditions, provision has been made for the storage of at least 30 days supply of all required supplies on the platform.

The scheme developed in the Gulf, for transferring personnel and material from supply boat to platform and vice versa in specially rigged cargo nets, has been adopted for Texas Towers as being the best solution developed so far. For the protection of the tower legs against damage from the supply boat, movable fender systems will be provided which can be raised out of wave area when not in use. Provision will also be made on these fenders for attaching ships lines to two legs so that with these lines in place the supply ship can be held reasonably stationary with its engines in reverse or with a stern anchor. The positioning and holding of the supply boat is quite critical due to the limited boom reach of the cranes. To facilitate transfer of lifts to and from the supply boat and the launching of life boats, two cranes with constant tension winches are contemplated for the weather deck. The extreme height of the platform above water level and the exaggerated ship motion between floating ship and stationary tower, precludes mooring the ship against the platform even with fenders except during exceptionally calm conditions.

"Caterpillar" No. 41 Hydraulic Control imparts increased versatility to "Caterpillar" D2 and D4 Diesel Tractors. Here a D4 Tractor and tool bar with ditcher attachment is making irrigation ditches.

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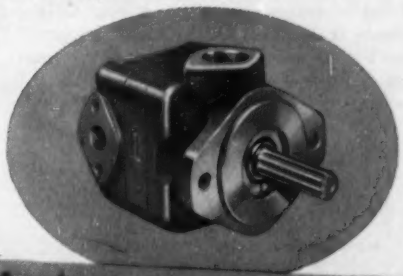
This is the Vickers Pump used in the "Caterpillar" No. 41 Hydraulic Control. Hydraulic systems on tractors and other farm equipment use more Vickers Pumps than any other make.



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. . . Texas Towers floated to sites

However, it was found that the triangular shape is adaptable to the functional layout and was so selected. The electronic equipment for functional reasons is located along one side of the triangle. As the antennae must be located well above the main working deck to avoid radiation problems, the space underneath is enclosed to provide electronic equipment rooms. This arrangement requires a length of about 200 ft, thereby determining the size of the platform. The remainder of the weather deck is of a satisfactory size for a helicopter landing area.

The magnitude of these towers is quite impressive. For the deepest site, the water is 190 ft deep, the clearance above still water is 67 ft, the platform including deck house is about 35 ft thick and the electronic equipment extends upward an additional 60 ft. Thus it is found that the largest tower will extend some 350 ft above ocean bottom plus some 20 ft below. This compares with the height of a modern 30-story building.

On the first deck below the weather deck have been placed billeting and messing facilities, utility rooms, laundry, shops, etc. The second deck below the weather deck will be used for storage of supplies.

• **Temporary legs required**—The platform can be built on shipways or in a shipbuilding basin, launched and then fitted out at a pier. Temporary lifting legs, of a design to be selected by the contractor subject to Navy approval, will be required to raise the platform after towing to the erection site. Then while the platform is supported on the temporary legs, the three permanent legs are available for use as pneumatic caissons for further bottom exploration and for preparation of pockets into which the bottoms of the legs can be set at the rock sites.

At those sites on sand, the permanent legs will be fitted with tubes for jetting down to the predetermined required depths.

The flexible diagonals will be connected to the legs near their lower end and to the bottom of the platform at some stage prior to final lowering of the legs. With the legs in their permanent position, the diagonals will be tensioned. After the permanent legs are secured to the platform and filled with reinforced concrete, the temporary legs and connections can be removed.

Any jacking scheme, to be satisfactory, must be capable of lifting the barge well out of the water within a very few hours after the temporary jacking legs are lowered to the bottom. As the platform is lifted clear of the water surface the pounding from wave action can be severe.

• **Lump-sum contracts**—It is planned that construction will be accomplished by two or more competitive lump-sum contracts, each of which will include fabrication, assembly and erection at the site. The design of the platform and permanent legs will be specified. The method of erection will be left entirely up to the contractor who, subject to Navy approval as to adequacy, may use patented or unpatented systems as he may desire. This division into separate contracts will be determined in part by the time required to complete the several designs.

Consideration is being given to acceptance by the government of the risk of damage resulting from storms and the elements. This would reduce insurance costs. Inasmuch as the sites are outside the continental limits, it is anticipated that the provisions of the Davis-Bacon Act with regard to wage rates will not apply. This holds true for that portion of the work accomplished within the continental limits as well. The importance of these towers will warrant the inclusion of a provision for the assessment of large liquidated damages.

Due to the many involved and complicated problems expected to arise in the construction of these towers in practically the open ocean, it is anticipated that bids may be solicited from a selected group of bidders who have successfully completed projects of a similar nature and magnitude and who currently have organizations and equipment that would be required for the expeditious completion of such a project.

• **Management**—The towers are being constructed under the direction of Major General Lee B. Washburn, Asst. Chief of Staff for Installations for the U. S. Air Force, representing the owner and using agency. Lt. Col. L. B. Reppert is the liaison officer for the Air Force. The design and construction is under the direction of Rear Admiral John R. Perry, Bureau of Yards and Docks, Navy Department, who has assigned this project to Captain William F. Wesanen, District Public Works Officer, First Naval District, Boston, Mass. The firms of Anderson-Nichols and Co., Boston, Mass. and Moran, Proctor, Mueser & Rutledge have been selected for the preliminary and final design. The Woods Hole Oceanographic Institute, Falmouth, Mass., assisted materially in the planning for these towers.

Fires effect final clean-up of reservoir site in Connecticut, where there's . . .

CUT TREES are pushed into piles by tractor with root rake.

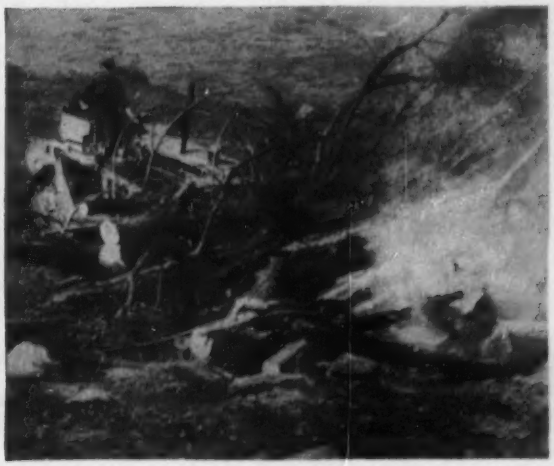
Timber to Burn

"There is no money in salvage in this area." That's the conclusion of W. H. McPheters, chief engineer of the Construction Engineering Co. of America, Inc. He means salvage from land-clearing operations like the one this specialist organization is now completing on a reservoir site in western Connecticut.

Construction Engineering (ENR Sept. 23, p 24) has completed virtually all the clearing and has burned 90% of the brush and timber off 1,870 acres along banks of the Housatonic River and its tributary, the Shepaug.

(*Continued on page 32*)

BURNING PILES this size end up as thin layers of wood-ash.



TRACTOR IS STOKER—Occasional shove keeps fire blazing.

. . . Timber to burn at reservoir site

A reservoir with 35 miles of shoreline will form behind 139-ft-high Shepaug Dam to feed a 57,000-kw adjustable blade Kaplan turbine. It will be the largest single hydroelectric unit and the largest concrete dam in Connecticut. United Engineers and Constructors, Inc., of Philadelphia, are building the dam and power house for Electric Power, Inc., wholly owned subsidiary of The Connecticut Light and Power Company. Charles T. Main, Inc., Boston, was the consultant.

• **Very little logging**—Clearing of the reservoir area has been a cutting, piling and burning operation. Lumbering done has been practically negligible, for a combination of reasons. Because of generally low quality of the timber to be cut, Construction Engineering found nobody interested in the total production. And it was more timber than all the relatively small local lumber mills combined could handle. So only a fractional portion of the wood cut has been taken from the future lake bottom.

CLEARED FOR FILLING—Lower end of reservoir where lake will be widest was finished first. Foilage in foreground is second growth which sprouted this summer.

CHALLENGE FOR CLEARING—Near-vertical, wooded walls of rocky gorge at upper end of reservoir will require woodsmen to work from ladders in the stream.

At one place accessible by road—in one of about 73 sloughs that needed clearing—extremely rough terrain required manual handling of the cut trees. They were going to have to be hauled out to an open spot for burning, so Construction Engineering ran an advertisement in all the local papers: Free Fire Wood. Everything from pick-up trucks to a chauffered Cadillac came to take advantage of the generous offer, but not enough could be given away to make this a worthwhile means of disposal.

At another point, the contractor's woodsmen had a fine stand of some 5,000 firs that would have marketed well as Christmas trees. But the land owner who controlled their access to the clearing area had trees of his own to market. What he finally let them haul out did not amount to much. The rest went on the fires.

• **Rough going**—Construction Engineering has found some rugged terrain needing clearing along 10 miles of the Housatonic and 4 miles of the Shepaug. There are ¾ mi of nearly vertical rock walls—90% slope or better—from which trees overhang the river; about 7 mi of steep slopes—over 50%—running down to the river bank; and 22 miles of basin slopes in the 30 to 50% range. Of the total 1,870 acres only 150 acres were without trees and brush.

Much of the acreage consists of boulders and marsh. Where it wasn't marshy to begin with, removal of vegetation on the basin's slopes caused them to seep water and create quagmires during six spring and winter months of operation.

• **But good progress**—Work began last October on a 15-month contract. As the contractor's force developed with woodsmen brought down from Maine and Canada, it reached a peak of 130 men. Working 13 tractors equipped with root rakes and winches, this force cleaned up the cuttings of its 40 chainsaws and 8 brush-cutters. At their best, they cut, stacked and burned vegetation off 170 acres in a ten-day period.

Some 60% of the clearing was done in about 30% of the contract time. The contractor is now working a minimum force on final stages of the work.

• **Cut, stack and burn**—Clearing methods have had to vary with the terrain. Where slopes permitted tractor operation, cut trees were pushed with

tractor-mounted root rakes into piles for burning. Where the tractors couldn't go, their winches went to pull timber out to a spot flat enough for piling and burning.

It has been the practice to put a few old rubber tires wet with fuel oil under each pile to be burned. The oil burns easily and ignites the rubber. The rubber burns hot enough and long enough to ignite the trees and brush. A big pile will burn two or three days, but when it is done there is nothing left but a layer of wood-ash.

Stump removal is not required in this clearing operation, as it is in water supply reservoir preparation. Trees are cut off close to the ground and stumps are left in. However, within the range of what will be a fluctuating lake level, stumps are cut way down parallel to the ground's slope in final clean-up operations. This is being done to minimize chances of damage to boat bottoms later, when Shepaug Reservoir becomes another in the series of resort lakes Connecticut Light and Power has created along the Houstonic River.

• **Cost of clearing**—This clearing operation is being done for about three-quarters of a million dollars. (Total cost of the hydro project has been called $13 million.) For 1,870 acres, this figures just over $400 an acre.

A $400 per acre price for clearing compares reasonably with some unit prices published by ENR in recent months. On a recent job in Maine the low bidder submitted $400 per acre; second low bid $650. On a recent project in the state of Washington, clearing went for $100 per acre; but here it may be assumed the timber to be removed had real value in the market.

Another recent job was advertised for a clearing contractor on the strength of its producing a million board-feet of lumber. Naturally, it was bid under $400 per acre. And in Baltimore, on the water supply reservoir behind recently completed Liberty Dam, the logging operation was not even let to contract, but was handled by city forces, with the books showing a dollar advantage to the city in so doing the job.

Obviously the finding of Construction Engineering that there would be no money in extensive logging of the Shepaug Reservoir site is not a universally applicable conclusion. Each individual project must be studied for its own possible production, its own possible markets.

Gerald T. Erickson is president of Construction Engineering Co. of America, Inc. W. H. McPheters is chief engineer; William O. Shepherd is superintendent.

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WEATHER

Observed weather in 20 cities, compared with normals

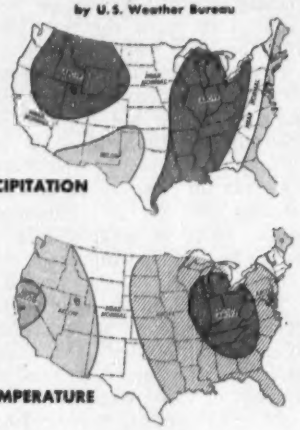
	Precipitation, inches				Temperature, degrees			
	Oct. 1954	Departure fr. normal	10 Mos. 1954	Departure fr. normal	Mean Oct. 54	Departure fr. normal	Av. daily Maximum	Av. daily Minimum
Atlanta	0.17	−2.43	24.68	−16.52	64.5	+1.1	76.3	52.6
Baltimore	3.24	−0.13	20.93	−13.83	59.6	+3.1	70.9	49.1
Birmingham	1.77	−1.09	39.92	−13.37	64.5	+0.8	77.3	51.7
Boston	3.58	+0.79	51.49	+19.59	58.0	+3.6	66.4	50.8
Chicago	12.08	+9.50	42.35	+13.89	55.3	+1.2	63.2	47.3
Cincinnati	4.88	+2.69	33.03	−0.49	58.0	+0.6	68.0	47.9
Cleveland	9.50	+7.06	35.98	+8.85	56.2	+1.8	64.5	47.8
Dallas	2.98	+0.31	23.99	−5.38	70.1	+1.3	80.2	59.9
Denver	0.03	−0.97	5.24	−6.97	53.9	+0.9	67.2	40.5
Detroit	7.80	+5.51	30.37	+3.71	54.5	+1.6	62.4	46.6
Kansas City	5.10	+2.17	26.81	−4.83	59.4	−0.2	67.5	51.3
Los Angeles	T	−0.50	10.80	+0.40	65.7	−0.9	76.5	54.9
Minneapolis	1.23	−0.42	22.74	+0.32	47.7	−2.7	55.4	40.0
New Orleans	3.76	+0.10	41.15	−13.80	75.1	+2.3	82.5	67.6
New York	2.22	−0.82	29.56	−6.31	60.9	+3.9	67.8	53.9
Philadelphia	1.84	−0.77	30.06	−5.53	61.9	+3.4	69.9	53.8
Pittsburgh	7.79	+5.30	35.87	+3.34	57.9	+2.0	66.0	49.7
St. Louis	3.76	+0.86	26.36	−6.46	59.8	−0.8	67.9	51.6
San Francisco	0.24	−0.83	11.63	−2.54	61.5	+0.5	69.2	53.7
Seattle	1.64	−2.04	26.81	+4.69	53.5	−0.9	59.9	47.1

T—Trace (Less than 0.005 inches)

30-DAY WEATHER OUTLOOK

Mid-November to mid-December

by U.S. Weather Bureau



Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.

Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June
Atlanta	2.43/3.85	2.94/4.58	3.46/5.30	3.42/5.32	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00	3.43/6.33	3.12/5.72	2.82/5.10	2.48/4.72	2.14/4.33	2.50/4.38
Baltimore	1.86/3.12	1.99/3.43	2.41/3.73	2.59/3.85	2.77/3.96	2.57/3.68	2.36/3.39	2.48/3.76	2.59/4.13	2.59/4.17	2.58/4.20	2.76/4.30	2.94/4.40	2.73/4.42
Birmingham	2.17/3.91	2.94/4.83	3.71/5.75	3.75/5.58	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26	4.48/6.63	3.91/5.85	2.94/5.07	3.05/4.81	3.16/4.55	2.90/4.70
Boston	2.74/4.46	2.82/4.33	2.89/4.20	2.83/4.12	2.77/4.05	2.70/3.99	2.64/3.93	2.79/4.22	2.94/4.50	2.66/4.45	2.39/4.40	2.58/4.29	2.39/3.50	2.42/3.84
Chicago	1.59/2.80	1.46/2.62	1.32/2.45	1.30/2.28	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67	1.99/3.11	2.09/3.12	2.19/3.13	2.24/3.56	2.16/4.00	2.29/3.83
Cincinnati	1.99/3.67	2.14/3.48	2.29/3.28	2.32/3.54	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64	2.39/4.29	2.68/3.94	2.34/3.60	2.42/3.65	2.49/4.10	2.59/4.30
Cleveland	1.82/2.77	1.76/2.68	1.70/2.56	1.65/2.58	1.59/2.60	1.55/2.52	1.51/2.43	1.81/2.71	2.10/2.98	2.15/3.13	2.20/3.27	2.27/3.38	2.33/3.49	2.17/3.83
Dallas	1.64/3.00	1.36/3.00	1.09/3.00	1.24/3.05	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08	2.34/3.86	2.50/4.68	2.66/5.56	2.82/5.38	2.99/5.25	2.39/4.85
Denver	0.29/0.68	0.34/0.72	0.39/0.77	0.28/0.64	0.18/0.50	0.26/0.54	0.34/0.58	0.46/0.84	0.59/1.10	0.96/1.75	1.34/2.40	1.48/2.65	1.62/2.90	0.64/2.32
Detroit	1.77/2.73	1.70/2.66	1.64/2.60	1.63/2.50	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64	1.77/2.78	1.78/2.76	1.79/2.73	2.14/3.20	2.49/3.67	2.66/3.88
Kansas City	1.27/2.35	1.02/1.95	0.77/1.55	0.68/1.48	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40	1.59/2.90	1.99/3.15	2.39/3.40	2.82/4.40	3.24/5.40	3.42/5.82
Los Angeles	0.26/1.36	0.70/2.00	1.14/2.70	1.19/3.00	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08	1.13/2.95	0.68/1.92	0.22/0.90	0.14/0.62	0.05/0.35	0.02/0.18
Minneapolis	0.67/1.57	0.62/1.44	0.57/1.30	0.60/1.19	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38	0.98/1.67	1.34/2.14	1.69/2.60	2.16/3.29	2.64/3.98	2.89/4.49
New Orleans	2.60/4.67	2.96/4.92	3.34/5.17	3.36/5.28	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00	3.22/5.30	2.94/5.15	2.66/5.00	2.65/5.12	2.64/5.25	3.18/5.88
New York	2.21/3.95	2.42/3.86	2.64/3.77	2.55/3.71	2.46/3.65	2.41/3.88	2.36/4.10	2.35/4.08	2.34/4.05	2.40/3.92	2.47/3.78	2.50/3.90	2.54/4.02	2.45/3.91
Philadelphia	2.38/3.50	2.50/3.70	2.64/3.90	2.60/3.80	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84	2.62/4.00	2.56/3.91	2.49/3.82	2.44/4.11	2.39/4.40	2.54/4.25
Pittsburgh	1.84/2.72	1.96/3.00	2.09/3.27	2.12/3.20	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15	2.34/3.47	2.32/3.44	2.29/3.40	2.39/3.58	2.49/3.75	2.68/3.98
St. Louis	1.86/3.30	1.70/3.05	1.64/2.80	1.52/2.75	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42	2.27/3.95	2.43/3.88	2.59/4.10	2.98/4.65	3.13/5.20	2.96/5.25
San Francisco	1.04/3.30	1.62/4.28	2.19/5.25	2.34/5.12	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13	1.94/3.55	1.30/2.54	0.67/1.54	0.44/1.12	0.18/0.69	0.09/0.37
Seattle	3.42/5.60	4.00/5.74	4.17/5.89	4.14/5.57	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02	1.81/3.43	1.76/3.16	1.64/2.90	1.53/2.45	1.42/2.00	1.09/1.86

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.

Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Nov.	Mid Nov.-Mid Dec.	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June
Atlanta	51.1/52.7	46.6/48.4	44.0/46.0	48.3/50.3	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1	51.2/53.6	55.9/58.0	60.9/62.6	64.9/66.3	69.0/70.5	73.5/74.6
Baltimore	45.6/47.0	40.2/42.0	35.8/37.8	34.2/36.1	32.9/35.7	32.4/36.0	34.6/38.0	38.1/41.7	42.0/45.7	46.6/49.4	51.9/53.6	57.5/59.0	63.4/64.6	68.2/69.5
Birmingham	50.7/53.2	46.5/48.9	44.3/46.5	43.4/46.1	43.5/46.5	44.4/47.6	46.0/49.4	48.8/51.7	52.4/54.7	56.6/58.5	61.1/62.6	64.6/65.3	68.4/70.2	72.4/74.5
Boston	43.6/45.6	36.8/39.2	31.2/34.0	28.9/31.9	27.9/31.2	26.4/29.6	27.8/30.0	31.4/34.0	35.6/38.6	41.1/43.3	46.7/48.3	51.5/53.1	56.7/58.4	56.8/58.6
Chicago	38.6/41.5	31.2/35.0	25.7/30.1	23.7/28.5	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2	34.6/39.1	40.9/43.8	47.5/48.8	52.7/54.7	57.9/60.5	63.1/66.1
Cincinnati	42.0/44.5	35.9/39.1	31.4/35.2	30.1/34.4	29.8/34.5	29.9/34.4	31.6/36.0	35.2/39.2	39.6/43.1	45.4/48.1	51.4/53.3	56.4/58.6	61.5/64.0	65.2/67.0
Cleveland	40.5/42.7	34.3/37.2	29.3/32.9	27.3/30.9	26.9/30.5	26.0/29.6	26.2/29.7	29.8/33.7	34.7/38.8	40.3/43.2	46.2/47.8	51.8/53.9	57.9/60.3	63.5/65.7
Dallas	54.3/56.7	49.6/52.3	47.0/49.3	44.8/47.1	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6	55.5/59.6	60.1/63.7	64.2/67.3	68.4/71.1	72.6/75.0	77.2/78.8
Denver	38.0/41.4	33.5/36.7	30.5/33.5	28.3/31.4	27.0/30.0	27.9/31.5	30.5/34.7	33.1/36.8	35.9/39.1	40.4/43.2	46.3/48.6	51.1/53.4	55.2/57.4	60.0/62.1
Detroit	39.2/41.1	32.9/35.3	27.9/30.0	25.6/28.5	23.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1	33.1/37.2	39.3/42.1	45.6/47.1	51.0/52.8	56.5/58.7	62.3/64.4
Kansas City	42.6/45.9	36.7/40.1	32.4/35.9	30.4/33.0	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2	41.9/45.9	48.6/51.3	54.7/56.7	59.9/61.7	64.6/66.4	69.4/71.2
Los Angeles	57.9/59.8	56.5/58.2	54.9/56.5	53.4/54.8	52.7/54.0	52.6/54.3	52.9/55.1	54.1/56.3	55.4/57.4	56.6/58.4	58.1/59.7	58.8/61.3	61.4/62.8	62.5/64.0
Minneapolis	26.9/36.0	22.5/28.1	16.2/22.3	13.8/18.4	13.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9	29.9/32.5	37.3/40.3	44.7/47.9	51.3/54.4	57.2/60.2	62.2/64.9
New Orleans	59.0/61.9	56.0/58.5	54.6/56.8	53.2/56.0	52.6/56.0	54.0/61.4	55.9/59.3	57.6/60.8	60.6/63.0	63.4/65.7	67.4/69.1	70.7/72.1	73.8/74.9	77.0/78.1
New York	46.5/47.9	40.2/42.3	34.6/37.5	32.5/35.2	32.0/34.6	30.9/33.6	30.9/33.6	34.1/36.8	38.7/41.3	43.6/46.0	49.0/51.0	54.6/56.3	60.6/62.1	65.9/67.5
Philadelphia	43.3/47.2	38.9/42.0	35.1/37.3	32.7/35.4	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2	40.8/43.5	45.6/47.9	50.8/52.6	56.2/58.0	62.3/64.0	67.5/69.2
Pittsburgh	40.3/42.0	34.0/36.4	29.5/32.6	27.8/31.0	26.9/30.1	26.4/30.5	26.9/32.0	30.5/35.4	36.0/40.6	43.9/45.5	48.0/49.8	53.1/55.1	58.7/60.9	63.5/65.8
St. Louis	43.6/46.9	37.6/41.2	33.3/37.1	30.9/35.1	30.1/34.7	31.3/35.7	33.7/38.1	37.8/41.8	42.9/46.3	48.6/51.5	54.5/57.0	59.8/63.3	64.6/66.6	68.7/71.5
San Francisco	53.8/55.0	50.9/52.3	48.7/50.2	47.1/48.9	46.9/49.1	47.3/50.8	50.0/51.7	51.0/52.8	52.4/55.1	52.4/54.2	53.2/55.0	54.3/55.9	55.9/57.4	57.5/59.1
Seattle	43.1/44.5	41.0/42.4	39.4/40.7	37.7/39.0	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3	43.6/44.7	45.8/47.2	48.2/49.9	51.0/52.9	54.2/56.3	56.9/58.5

OBITUARIES

Tucker McClure, 61, construction engineer, died Oct. 25, in Brentwood, Calif. He had worked on projects in Honolulu and Alaska.

Dan. B. Miller, 68, managing engineer of the Pacific Coast Division of The Asphalt Institute in San Francisco from 1931 until retirement in 1947, died in Palo Alto, Calif., Oct. 23.

Jacob Mack, 80, retired building contractor, died Oct. 29 in Niagara Falls, N. Y. He was a former partner in the Laur & Mack Building Contractors firm.

Frank I. Wintz, Sr., 86, a retired builder, died Oct. 28 at Philadelphia. He had been in the construction business for 51 years.

John T. Hoffman, 33, director of purchases for Catalytic Construction Co., in Philadelphia, died Oct. 26 in an airplane accident near Mt. Clemens, Mich.

Amabile E. Aletti, 46, project engineer for Catalytic Construction Co., Philadelphia, died Oct. 26 in an airplane accident near Mt. Clemens, Mich.

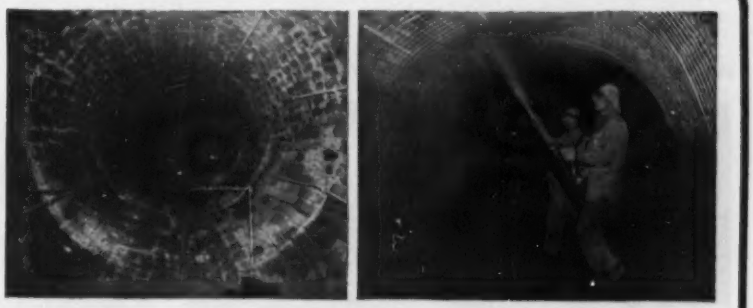
Alfred M. Heaton, 54, vice-president of Spearin, Preston & Burrows Co., marine engineers in New York City, died Nov. 2. Previously he was resident vice-president in charge of New England operations for Merritt-Chapman & Scott Corp., New York City.

James D. Buchanan, 43, civil engineer in charge of Pennsylvania Railroad's western division, died Oct. 25 in Indianapolis. He was a graduate of Purdue University, and formerly was employed by Standard Oil Co. of Indiana and the Indiana Highway Commission.

George M. Garen, 67, assistant chief engineer in charge of St. Paul's construction department of public works, died Oct. 28. Early in his career he served with the St. Paul district of the Corps of Engineers.

Jens A. Holmboe, 62, principal assistant civil engineer in the St. Paul department of public works, died Oct. 31.

Charles A. McGill, 65, president of McGraw Construction Co., Middletown, Ohio, died Nov. 5. He formerly worked for F. H. McGraw Co., with headquarters in Connecticut.



"GUNITE" STRENGTHENS EXISTING SEWERS

Reinforced "GUNITE" lining has been successfully used on brick, tile and concrete sewers, restoring them to greater than originally designed strength.

Erosion of mortar joints and dislodged bricks made many sections of the above 65-year-old brick sewer in Illinois both dangerous and inefficient. We placed a reinforced "GUNITE" lining of varying thickness in this sewer without opening the streets. Sewer service was maintained by installing temporary flumes and also by by-passing through relief sewers.

This job, and many other types of "GUNITE" jobs which we have done, are illustrated and described in our new 64-page general bulletin A2400. A request on your letterhead will bring you a free copy by return mail.

We will be pleased to cooperate with you on any of your problems.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES – ALLENTOWN, PA., U. S. A.

MANUFACTURERS OF THE CEMENT GUN

Cut Concrete Placing Costs with
BLAW-KNOX CONCRETE BUCKETS

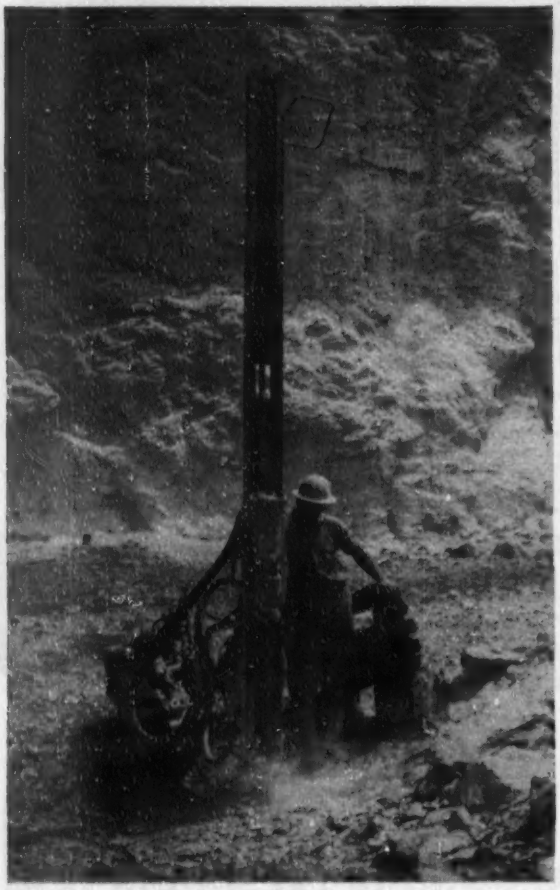
There's a size and type of Blaw-Knox Concrete Bucket to speed your work and help you cut costs.

Roller Gate Controllable Discharge Buckets for normal or low slump concrete for general construction work; CAC Buckets with air-operated clam gates for low slump mass concrete specifications; Type C Manual Clam Gate Buckets for normal slump concrete.

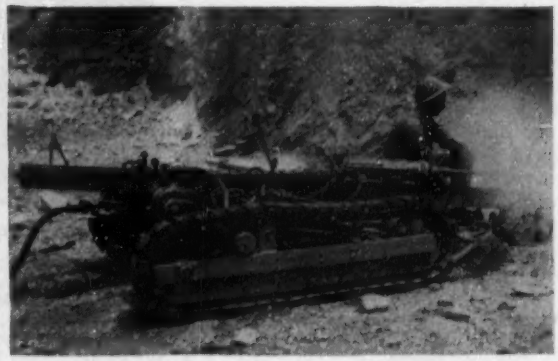
See your nearest Blaw-Knox distributor for details.

Photo — courtesy F. H. McGraw & Co.

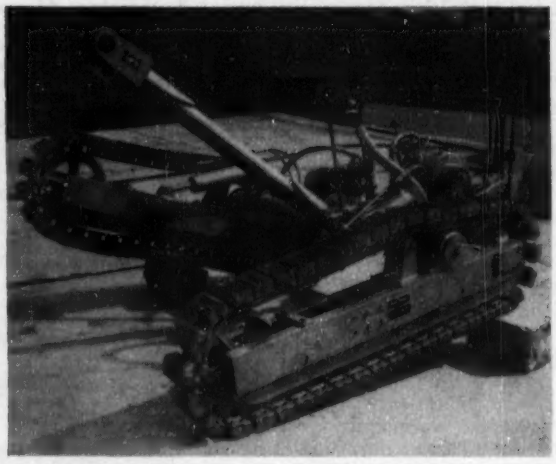
BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
PITTSBURGH 38, PA.
Offices in Principal Cities



TRACKS ASKEW the Air Trac nevertheless maintains the 12-ft drill feed in a stabilized, perpendicular position.



FOR DRILLING TOE HOLES the column arm of the air track may be depressed to an angle below the horizontal.



BLOCKED UP to show the amount of track deflection possible, the self-equalizing feature keeps the column arm in position.

The Air Trac Spots Drill Holes in the Rough

When the going gets rough, a new drill carriage called the Air Trac may come in handy for transporting and spotting a rig.

The highly unconventional unit consists of a drill saddle mounted on a column arm and two crawler treads driven by air motors. Tractive power development is sufficient to haul an 11,720-lb compressor unit up a 10% grade.

The tee bar controlling the position of the drill feed is hand operated by a hydraulic hoist that actuates two lift cylinders. According to the manufacturer, once the column arm supporting the drill feed is positioned and the hydraulic mechanism locked, the position of the column arm is self-equalizing. That is, it makes no difference whether one track is up and the other down, they are automatically equalized. As can be seen from the photographs, the column arm remains unaffected even though one track may be deflected upward at a severe angle and the other is deflected downward at the same angle.

However in some special cases where one track must be placed higher than the other—straddling a curbing for instance—it may be necessary to rotate the saddle around the column arm to bring the drill feed to the desired position.

The 5-ft 1-in. column arm is designed to swing through a vertical arc of 86½ deg. A part of this arc is below the horizontal to permit the drilling of toe holes. Maximum depression of the column arm brings the saddle to ground level; maximum elevation brings it 6½ ft above.

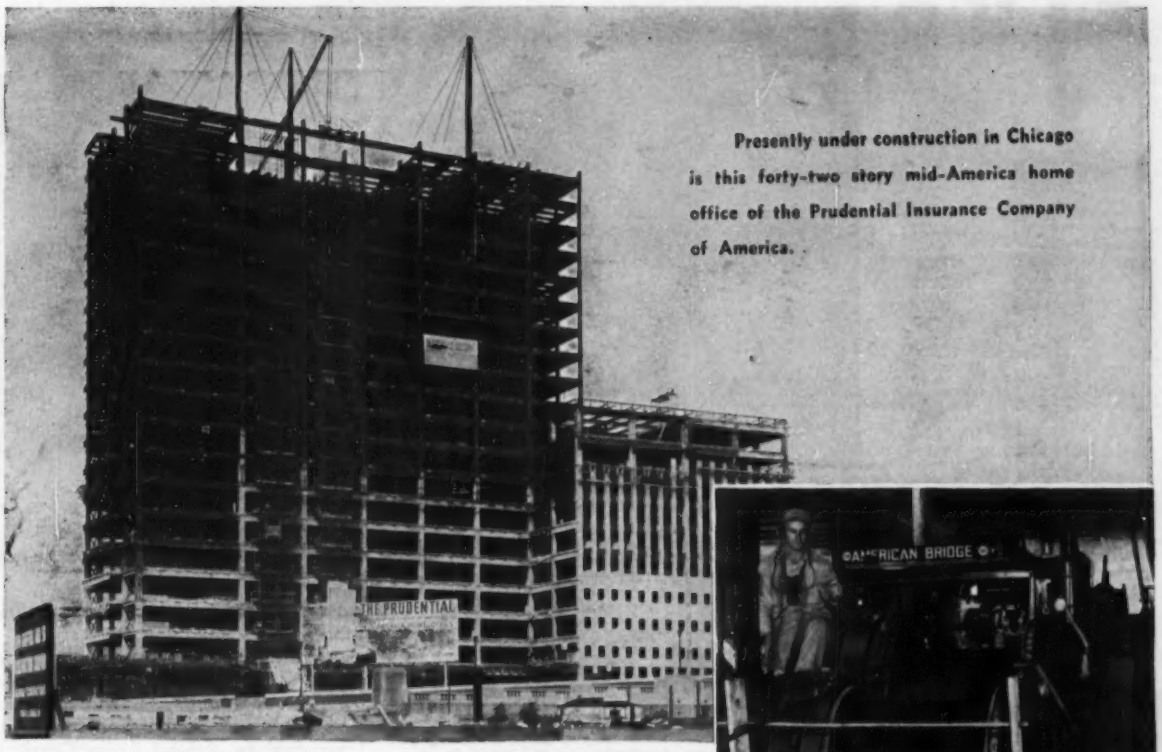
Standard treads are 6 in. wide and the shoes are made up of laminations of rubber and fabric. Standard gage of the Air Trac is 5 ft 2 in. but a 1-ft wider gage is available. Overall length from saddle to drawbar with the column arm at horizontal is 7 ft 9 in.

Weight of the standard gage machine is about 3,000 lb; the wide gage Air Trac tips the scales at 3,100 lb. J. W. Burress, Roanoke 1701 Shenandoah Ave., N.W., Roanoke, Va.

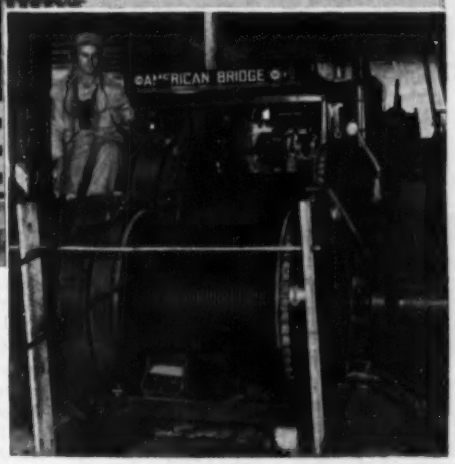
Automatic Drafting Pen Carries Its Own Ink Supply

Draftsmen bothered with ink-stained fingers might find the answer to their needs in a new push-button drafting tool called the Rule-O-Matic. According to the manufacturer, this ruling pen not only ends ink mess, but

(Continued on page 38)



Presently under construction in Chicago is this forty-two story mid-America home office of the Prudential Insurance Company of America.



Three CLYDE hoists set steel on this forty-two story Chicago project

There's a lot the illustrations do not show about this construction project

Only one of three Clyde Steel Erector's Hoists on the job is pictured. We would like to be able to boast that a dozen Clyde Hoists worked on this job, but it takes only three to keep up to schedules . . . to keep materials flowing smoothly, that's the extra value you'll find in Clyde.

Time is big money on a project of this proportion. Any down time throws a monkey wrench into schedules and costs! Ease of maintenance . . . minimum maintenance . . . may have been a deciding factor in the contractor's choice of Clyde Hoists. Or perhaps the all-steel bed and side frames that provide the necessary ruggedness without excessive weight. The selection could have been based on the large diameter brakes and internal expanding band friction clutches that engage and release smooth and positive for perfect load control. Anti-friction bearings throughout and the ease of chain adjustment without removing chain guard are more features owners and operators like in Clyde Hoists!

It takes a lot of features to add up to a superior quality, work-hungry hoist . . . one that will smoothly and swiftly spot loads with safety, without operator fatigue and without downtime! All these and many other outstanding and exclusive features of Clyde Hoists are the result of the 55 years of engineering and manufacturing know-how that goes in to every Clyde.

Before considering the purchase of any hoisting equipment, write for complete information about a "Quality-Plus" Clyde Hoist. Get all the facts and you'll get a Clyde.

HOISTS—DERRICKS—WHIRLEYS—BUILDERS TOWERS—CAR PULLERS—HANDI-CRANES—ROLLERS

CLYDE

CLYDE IRON WORKS, INC.

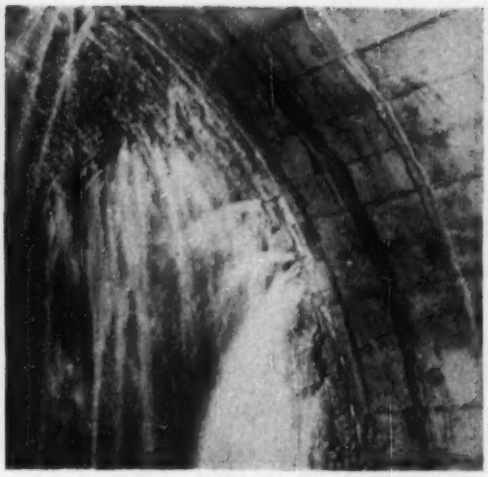
Established in 1899

DULUTH 1, MINNESOTA

ONE OF THE 16 INTEGRATED COMPANIES

BARIUM STEEL CORPORATION

SIKA



STOPS LEAKS FAST . . . AND SIMPLY, TOO

Sika can seal leakage through any concrete structure against pressure. The Sika method is quick, sure and long-lasting.

Here is all you do.

1. Hack and clean surface.
2. Mix quick-setting Sika liquid and portland cement.
3. Use Sika No. 4A mortar for sealing seepage and diverting water to bleeder holes. (For air-placed mortar use Sigunit.)
4. Use Sika No. 2 mortar (sets in 20 seconds) to plug bleeders.
5. After sealing all leaks, apply a protective cement coat over entire surface.

For 30 years Sika compounds and methods have helped solve concrete and masonry problems ranging from the production of high quality concrete to the sealing of joints or cracks subject to severe movement and pressure.

Additional Sika compounds cover the following specific problems: TO SEAL LEAKS AGAINST PRESSURE, TO SEAL JOINTS OR CRACKS, TO REPAIR NON-LEAKING SURFACES, TO REPAIR STRUCTURAL EXTERIORS, TO PLACE GUNITE OR PRESSURE GROUT, TO PRODUCE HIGH QUALITY CONCRETE.

Ask Sika's Engineers for details and recommendations.

SIKA CHEMICAL CORPORATION

35 GREGORY AVENUE, PASSAIC, NEW JERSEY

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COST INDEX REPRINTS

Are now available of the Construction and Building Cost Indexes insert charts which appeared in the October 7 issue of Engineering News Record. Requests should be addressed to: M. W. Roessler, Business News Dept., Engineering News Record, 330 W. 42nd Street, New York 36, N. Y. Cost: $.50 per set. Special rates on larger quantities.

also saves time and increases production.

Designed along traditional lines, the Rule-O-Matic holder contains an ink cartridge holding the equivalent of 55,000 inches of ruled lines. The ink, prepared by Artone Color Corp., is government approved India ink said to meet highest technical standards.

To fill the nib, the cap is pressed and a concealed feed-tube is activated to release the amount of ink needed to fill the nib. The pens are easily refilled. The used cartridge is removed; a new one inserted, and the pen is again ready for continuous work. Nibs are of rustproof stainless steel.

The pen retails for $14.95, complete with 2 cartridges and case. Refills are available at 3 for 59¢. RULE-O-MATIC CORP., 38 EAST 57TH ST., NEW YORK 22, N. Y.

Powder Actuated Tool Boasts High Drive Rate

Drive-It, a new heavy-duty fastener, reportedly sets hardened steel pins directly into steel or concrete at the rate of five to eight per minute.

A single .38 cal. blank cartridge drives the pins with an integral fastening said to be 30 to 70% quicker than by ordinary means. No drilling or special preparation is needed.

Safety pads protect both operator and working surface, and a two-handed firing sequence makes it impossible to fire the tool into the air or at dangerous angle. Special safety pads have been designed for conduit clamps, junction boxes, metal lath, channels, and other specialized fittings.

Tests by Pittsburgh Underwriters Laboratories indicate that the pins are three times stronger than commercial bolts. Powder Power Tool Corp., 7526 S. W. Macadam Ave., Portland 1, Ore.

High-speed vibrator has both rubber and steel tips

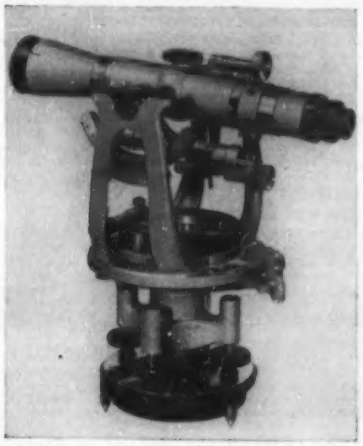
A new high speed vibrator has been developed with interchangeable tips. One is made of hard rubber for use where plywood forms are being used; the other is made of tool steel for long wear. The tips can be screwed on or unscrewed with a wrench, and a patented nylon plug is said to hold the tip in place in spite of the continuous vibration.

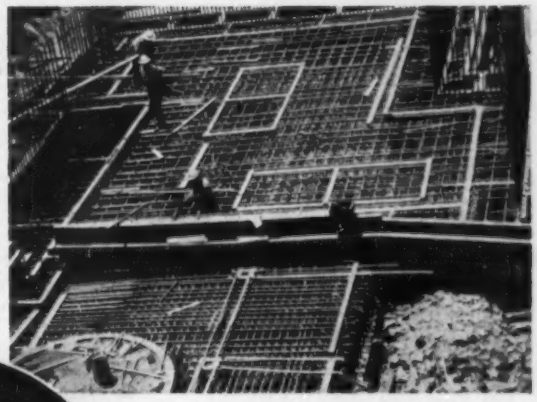
The new head is 10 in. long and is available in diameters of 1¾, 2 and 2½ in. Reportedly, they can be run as fast as 9,000 rpm. The vibration is caused by an eccentric weight mounted in special ball bearings at each end. A high speed shaft seal retains the oil lubricant for life. Stow Mfg. Co., 19 Shear St., Binghamton, N. Y.

Transit-level Is Improved

The Warren-Knight transit-level has been materially changed in appearance and improved in design and construction. New features include 24-power internal focusing telescope; coated optics; sealed in objective; larger eyepiece cap; larger vertical arc; nylon bearing for focusing pinion; one piece U-shaped standard and top plate; covered leveling screws; covered vernier opening; nylon leveling screw heads.

These improvements have been made without an increase in price—$285 with compass. $260 without compass. Dept. W, Warren-Knight Co., 136 N. 12th St., Philadelphia 7, Pa.





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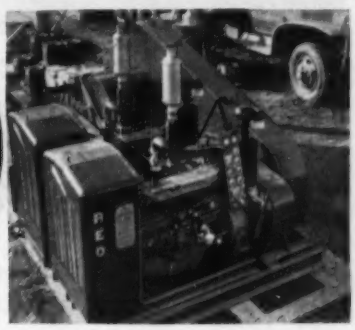

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† Mass., Falmouth—APRONS and WARMUP PAD—BA 12/7—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., aprons, warmup pad and aircraft refueling facilities, Otis Air Force Base, ENG-19-016-55-48, $2,000,000-$2,500,000. Plans deposit $10, Clarkeson Eng. Co., 285 Columbus Ave., Boston, engr. CD 11/11.

BIDS ASKED—BUILDINGS

Conn., Wilton—SCHOOL—BA 11/30—Town, R. Lee Waterman, chn., Intermediate School Bldg. Comn., Wilton Intermediate School, Harb's Property, Route 7, $469,000. Plans deposit $30. Filroy & Gaydosh, 64 Wall St., Norwalk, archts. CD 1/4.

SOON LETS CONTRACT—BUILDINGS

Vt., Rutland—MANUFACTURING—Tampax, Inc., 161 E. 42 St., New York, N. Y., soon lets contract foundations for 2 story 200x230 ft. mfg. bldg. Total est. $750,000. Walter Monroe Cory, 36 W. 40 St., New York, N. Y., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Gil Wyner Co., Inc., 12 Newland St., Malden, Mass. CA $2,623,674, est. $2,700,000. Hy. and bridges Revere Beach Parkway Broadway and Main St., U 342 (1), Everett. Bids Nov. 2, awarded Nov. 9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Vara Constr., Inc., 718 Huntington Ave., Boston, Mass. LB $1,768,000. Central Junior High SCHOOL, Hathaway Blvd., NEW BEDFORD, MASS. City, City Hall, 166 Williams St., New Bedford, Mass. Bids Nov. 12. CD 11/4.

▲ Fusco-Amatruda Co., 59 Amity Rd., New Haven, Conn., CA, $1,369,000, HIGH SCHOOL, East St., PLAINVILLE, CONN. Town Bd. Educ., c/o Walter J. Hiltpold, chn., Plainville, Conn. Bids Oct. 21. CD 10/26, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. J., Red Bank—BA 12/6—Red Bank Borough, Borough Hall, Monmouth St., Contract No. 1, general construction; Contract No. 2, electrical work; Contract No. 3, structural steel and iron works; Contract No. 4, heating and plumbing for sewage treatment plant addns., alterations. Plans deposit $50, each set. A. J. Lanning, 1100 S. Broad St., Trenton, Zone 10, consult. engr. Bids July 19 rejected. CD 6/9.

BIDS ASKED—BUILDINGS

▲ N. J., Unionville—SCHOOL—BA 12/7—Bd. Educ., Morris Ave., Junior High School. $1,800,000. Frederick A. Eisasser, 2013 Morris Ave., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Nello L. Teer, Box 1131, Durham, N. C. LB $1,339,576. resurf. 4.896 mi. US 13, near Princess Anne, Contr. S 195-2-120, Somerset Co.;
Robt. T. Main Co., Box 170, Salem, Va. LB $779,295. surf. 4.55 mi US 213, near Kennedyville, Contr. K 2-7-220, Kent Co.;
C. H. Lawson, Inc., Williamsburg, Va. LB, $206,185, surf. 2.428 mi. State Rte. 554 Stewart Corner to Camp Meade, Contr. AA 472-1-320, Anne Arundel Co.;
Contee Sand & Gravel Co., Laurel, Md. LB $370,492. surf. 0.764 mi. US 1, 3 span steel I-beam bridge over Middle Patuxent River, near Laurel, Contr. HO 273-7-720, Howard Co.;
T. Edgie Russell, Frederick, Md. LB, $313,994, surf. 1.957 mi. State Rte. 26, near Eldersburg, Contr. CL 304-1-720, Carroll Co.;
Taylor & Keebler, Inc., Box 121, Clinton, Va. LB $188,537. surf. 3.083 mi. State Rte. 381, near Aquasco, Contr. CH 294-530, Charles Co.;
Patapsco Contg. Co., 10 E. Cromwell St., Baltimore 30, Md. LB $419,996. wid'n. relocation, surf. 4.228 mi. State Rte. 33, near St. Michaels, Contr. T 157-4-220, Talbot Co. Bids Nov. 9. CD 10/27.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ 35 Park Ave., Inc., c/o Sylvan Bien, archt., 33 W. 46 St., New York 19, N. Y. Owner Builds. $2,500,000. 18 story APARTMENT, 25-37 Park Ave. southeast corner of E. 36 St., NEW YORK, N. Y. CD 4/1.

▲ Southern Commercial Constr. Co., 1341 Penna. Ave. S.E., Wash., D.C. CA $1,021,597. Suitland Junior High SCHOOL, UPPER MARLBORO, MD. Prince George's Co. Bd. Educ., Upper Marlboro, Md. Bids Nov. 9. CD 10/29.

▲ Standard Constr. Co., 1010 Vermont Ave. N.W., Wash., D. C., CA $15,790,000, HOSPITAL CENTER, U. S. Soldiers Home Grounds, WASH., D. C. General Service Admin., General Service Bldg., 19 and F Sts. N.W., Wash. 25, D. C. Bids Oct. 12, awarded Nov. 10. CD 10/15, under LB.

SOUTH

BIDS ASKED—BUILDINGS

Va., Lynchburg—HOSPITAL—BA 12/6—Virginia Baptist Hospital, Lynchburg, 2 story, bsmnt. hospital. $800,000. Stanhope S. Johnson, 1700 Allied Arts Bldg., archt. CD 3/13/51.

MIDDLE WEST

SOON LETS CONTRACT—BUILDINGS

Wis., Appleton—STUDENT HOUSING APARTMENT—Institute of Paper Chemistry, 1043 E. South River St., soon lets contract, 1 and 2 story, 145x270 ft., concrete, steel, brick student housing apartment. F. C. Shattuck, 174 E. North Ave., Neenah, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Complete General Constr. Co., 4810 W. Broad St., Columbus, O., LB $574,790, sewer in southeastern Columbus to relieve conditions in Berwick Addn., COLUMBUS, O. City, City Hall, Columbus, O. CD 2/11/52.

BUILDINGS

LOW BIDS AND CONTRACTS

Angelo George, 2590 Charing Ave., Columbus, O. CA Approx. $675,000, 1 story, concrete block, steel WAREHOUSE, also concrete block TRUCK GARAGE, 3640 Indianola Ave., COLUMBUS, O. Cussins & Fearn Co., 44 W. Chestnut St., Columbus, O. CD 6/23.

Lagrange Country Club Heights, Inc., 55 and Brainerd Aves., Lagrange, Ill., Own Forces, $600,000. 20 HOMES, LAGRANGE, ILL.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

Del Armi & DiEsposito, Inc., 6645 W. North Ave., Oak Park, Ill., Own Forces, $500,000, OFFICE, 6511 N. North Ave., OAK PARK, ILL. A. T. Smithson, 305 Harris St., Claredon Hills, Ill., archt.

▲ E. W. Kuntze, 903 Jeannette Ave., Des Plaines, Ill., Own Forces, $10,000,000. 350 HOMES in area of Oakton and Prospect Sts., PARK RIDGE, ILL.

▲ Brooks & Son, 5540 N. Maramore St., Chicago, Ill., Own Forces, $1,300,000, 100 HOMES, SCHILLER PARK, ILL.

▲ Selmer & Co., 128 N. Pearl St., Green Bay, Wis., CA Est. $6,000,000, general contract St. Vincent's HOSPITAL, GREEN BAY, WIS. Hospital Sisters of Third Order of St. Francis, 840 S. Webster Ave., Green Bay, Wis. Bids Nov. 4. CD 10/19.

▲ H. Schmitt & Sons, Inc., 930 E. Burleigh St., CA $1,250,000, OFFICE, MILWAUKEE, WIS. Equitable Life Assurance Society of U. S., 225 E. Michigan St., Milwaukee 5, Wis. Bids Nov. 3. CD 10/19.

Nelson & Co., Inc., 1550 Yout St., Racine, Wis., CA, $463,092, general contract, McKinley and Mitchell Grade SCHOOLS addns., alterations, RACINE, WIS. Bd. Educ., Racine, Wis. Bids Nov. 3. CD 10/12.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ Tex., Dallas—AUDITORIUM—BA 12/17—City, City Hall, Main and Harwood Sts., 3 story high and under a domed roof 300 ft. across auditorium, arena shaped with auditorium seating 10,000, Akard St. between Masonic and Canton Sts. $7,000,000. Plans deposit $75. George L. Dahl, 2101 S. St. Paul St., engr.-archt. CD 7/5/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† O'Brien & Padgett, 283 Scott St., Memphis, Tenn., CA, $616,690, est $614,509 bachelor officers quarters, etc., Little Rock Air Force Base, ENG-03-050-55-36, JACKSONVILLE, ARK. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Nov. 9, awarded Nov. 10. CD 10/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Rawlings Constr. Co., 1000 Forest St., Kansas City, Mo. CA general contract;
U. S. Engineering Co., 914 Campbell St., Kansas City, Mo. CA mechanical contract;
Wachter Electric Co., 3027 McGee Trafficway, Kansas City, Mo. CA electric contract for SHOPPING CENTER, incl. 16 retail stores, 13 offices, parking facilities, 63 and Prospects Sts., KANSAS CITY, MO. Total est. cost, $1,000,000. Milgram Food Stores, Inc., c/o Lester Milgram, 25 and Gilliam Rds., Kansas City, Mo. CD 7/1/53.

▲ Winn-Rau and Winn-Senter Constr. Cos., 430 Railway Exchange Bldg., Kansas City 6, Mo. CA Est. $30,000,000. 2,000 HOMES on 530 acre development, KANSAS CITY, KAN. Minnesota Ave., Inc., c/o J. W. Perry, 1401 Fairfax Rd., Kansas City, Kan.

▲ J. C. Nichols Co., 310 Ward Parkway, Kansas City, Mo. Owner Builds. $2,500,000. 90 RESIDENCES on 40 acres, 81-83 Rd. and Lamar St., PRAIRIE FIELDS (P.O. PRAIRIE VILLAGE) KAN. Tanner & Assoc., 310 Ward Parkway, Kansas City, Mo., archts.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., Los Angeles—BA 12/3—Los Angeles County Flood Control District, 2250 Alcazar St., Proj. 216, Ruby Canyon Storm Drain, Monrovia, $500,000. CD 11/7/52.

SOON LETS CONTRACT—BUILDINGS

Calif., Covina — HOSPITAL — Inter-Community Hospital, 275 W. College St., soon lets contract 2 story, 35,354 sq. ft., rein.-con. hospital, $500,000. J. Dewy Harnish, 222 E "B" St., Ontario, archt. CD 3/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Larsen Constr. Co., 2667 Lincoln St., Ogden, Utah. CA $2,000,000. 2 story, 50,000 sq. ft. each floor, STORE, OGDEN, UTAH. C. C. Anderson Store, 2265 Washington Blvd., Ogden, Utah. CD 7/28.

CANADA

BIDS ASKED—BUILDINGS

Ont., Brantford—HOSPITAL EXCAVATION, etc.—BA 11/25—Brantford General Hospital, Terrace Hill, excavation and concrete foundation for first unit of 5 story, L-shaped hospital expansion. $500,000. Charles H. Brooks, 11 George St., Brantford, and Harold J.

(Continued on page 42)

SUPERIOR

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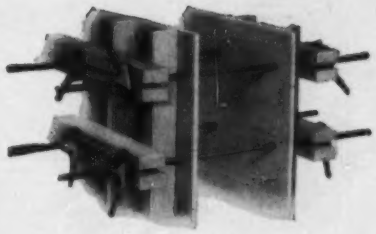
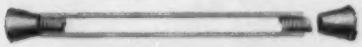


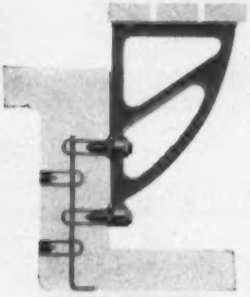
TILT LOCK CLAMPS

SNAP TIES

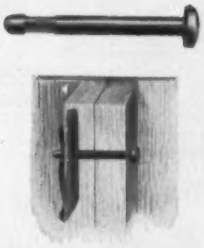
STANDARD COIL TIES



CONE-FAST COIL TIES



RISERFRAMES



PANEL LOCK BOLTS

ROD CLAMPS

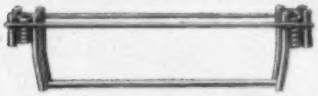
COIL LOOPS

SCREW ANCHORS AND BOLTS

STANDARD HANGER FRAMES

ADJUSTABLE SCREED CHAIRS

"PICK-UP" INSERTS FOR TILT-UP SLABS



SPECIAL HANGER FRAMES

WIRE BEAM SADDLES

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New York Office: 1775 Broadway, New York 19, N. Y.

Pacific Coast Plant: 2100 Williams St., San Leandro, Calif.

(Continued from page 40)

Smith, 62 Charles St. East, Toronto, Ont., archts. CD 3/23/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ QUEBEC—Prov. Roads Dpt., Quebec City, Simard & Frers Cie Ltee, 3 Ave. E., Amos, Que., CA, $1,000,000. new mining road from Lake Batchelor to Senneterre. E. Gohier, c/o owner, engr. CD 7/20/53.

▲ QUEBEC—Prov. Dpt. P. Wks., Quebec City, Dufresne Constr. Co. Ltd., 1832 Blvd. Pie IX, Montreal, Que., CA $1,000,000. bridge between Chambly and Richilieu, over Richilieu River replacing present Yule Bridge, Chambly. CD 10/6.

▲ La Societe d'Entreprises Ltee, 81-13 Ave., Gouin, Amos, Que., CA $2,400,000. 70 mi. railways branch line between Bachelor Lake and Beattyville incl. grading, culverts, clearing, trestles, sub-structures for bridges, etc.; Albert Lemieux Ltd., Aldred Bldg., 507 Place d'Armes, Montreal Que., CA $2,400,000 86 mi. railway branch line between Bachelor Lake and Chibougamau, incl. clearing, grading, culverts, trestles, sub-structures of bridges, etc., QUEBEC. Canadian National Rys., R.O. Stewart, ch. engr., 360 McGill St., Montreal, Que. Bids Oct. 29. CD 10/12.

Argo Constr. Ltd., 18 Gladstone Ave., Montreal, Que., CA, $542,000, Transit Sheds A and B, Wharf Section 35, Montreal, Harbor, MONTREAL, QUE. National Harbor Bd., West Block, Ottawa, Ont. Bids Oct. 13. CD 10/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Frid Constr. Co. Ltd., 138 King St. E., Hamilton, Ont., CA, Total est. $2,500,000, substructure, incl. excavation concrete, reinforcing steel, pile driving for cold roll strip MILL and POWERHOUSE, Gahr Line Blvd., HAMILTON, ONT. Dominion Foundries & Steel Co. Ltd., Depew St., Hamilton, Ont. CD 7/29.

▲ Louis Donolo, Inc., 8320 St. Lawrence Blvd., Montreal, Que., CA, $1,500,000. APARTMENT HOTEL, Albert and Slater Sts., OTTAWA, ONT. Beacon Realty Co. Ltd., 30 Rideau St., Ottawa, Ont. Bids May 4. CD 5/3.

▲ M. Sullivan & Son Ltd., 234 Elgin St., Arnprior, Ont., CA Total est. $2,000,000. grading and substructure for DEPARTMENT STORE, Carling Ave. and Woodruff Rd. OTTAWA, ONT. Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont. F. S. Corley, c/o owner, and Abra & Balharrie, 55 Metcalf St., Ottawa, Ont., archts. CD 4/8/53.

▲ Park Plaza Corp. Ltd., 372 Bay St., Toronto, Ont., Owner Builds, $2,000,000, 11 story, bsmnt., 94x147 ft. Park Plaza HOTEL, 4 Ave. Road, TORONTO, ONT. CD 8/20.

▲ L. M. Adler, 2200 Ward Ave., St. Laurent, Que., CA, $1,500,000. 80 semi-detached 30x40 ft., concrete, brick DUPLEXES, COTE ST. LUC, QUE. Cote St. Luc Development, Inc., 2757 Maplewood Ave., Montreal, Que., Thibedeau & Thibedeau, 2757 Maplewood Ave., Montreal, Que., archts.

No clutter or confusion at paving site. Premixed concrete delivered by Dumpcretes ready for placing.

PAVING ON THE OHIO TURNPIKE

Non-agitated Hauling Meets Every Test

On sections C-2 and C-3 of the Ohio Turnpike there's no clutter at the paving site. No paver, no water trucks, no men to run them.

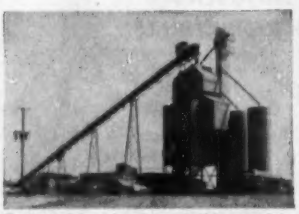
Just spreaders and finishers, plus a Dumpcrete or two discharging 4 yards of premixed concrete in 60 seconds.

The automatic central mixing plant is midway on the 10-mile job. Three men run it. 14 Dumpcretes haul its 95,000 yd. production.

Here's the bonus. The single plant supplies concrete for bridges, culverts, walls and widening as well as paving.

"It's an efficient, high-production operation. We like it," says D. W. Winkelman, contractor.

This method cuts costs on small jobs, too. It's approved by 25 state highway departments. Write for bulletins today.



Central mixing plant located midway on job.

Slump, cylinder, beam and air test (above) all O.K.

Manufacturing Division, Maxon Construction Co., Inc.
697 Talbott Building, Dayton 2, Ohio

Send Me ☐ Paving on the Ohio Turnpike ☐ 8 Ways to Set Up For Central Mixing

Name_____

Firm_____

Street_____

City_____

MAXON DUMPCRETE

Fastest from plant to pour

Proposed Projects

WATER SUPPLY

▲ Md., Baltimore—City, Bureau Water Supply, 503 Municipal Bldg., Zone 2, voted bonds Nov. 2, water supply, $5,000,000, Jos. H. Strohmeyer, c/o owner, engr. CD 6/28.

SEWERS, WASTE DISPOSAL

▲ Ill., Ottawa—City, City Hall, sewage disposal plant and sanitary sewers, $3,000,000. Farnsworth & Conley, Unity Bldg., Bloomington, Ind., consult. engrs. CD 1/25/51.

▲ Kan., Kansas City—City, City Hall, 805 N. 6 St., voted bonds Nov. 2, exten., imprv. storm and sanitary sewers, sewage plant, acquiring land, $3,700,000. CD 10/26

▲ Ky., Louisville—Metropolitan Sewer Dist., 414 W. Jefferson St., voted bonds Nov. 2, single sewage treatment plant in Paddy's run, $6,000,000; necessary interceptors, $9,000,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs. CD 8/23.

▲ Ky., Louisville—City, Metropolitan Sewer Dist., 414 W. Jefferson St., voted bonds Nov. 2, incinerator for garbage disposal, $3,335,000.

▲ Md., Baltimore—City, Bureau Sewers 312 Municipal Bldg., Zone 2, voted bonds, sewers, $5,000,000, John J. Hunt, c/o owner, sewage engr. CD 6/28.

▲ R. I., Cranston—City, City Hall, voted $2,000,000 bonds Nov. 2, sewers. CD 10/28/52.

▲ Wash., Seattle—Lake City Sewer Dist., 105.5 39 Ave. N. E., voted bonds Nov. 2, complete construction sewers in area, incl. trunk sewer along west fork of Thornton Creek, $6,000,000. Parker, Hill & Ingman, 1728 E. Madison St., consult. engrs. CD 12/30.

▲ W. Va., Huntington—Huntington Sanitary Bd., City Bldg., sewage disposal system, $8,000,000. CD 8/11/50.

BRIDGES

▲ O., Youngstown—Comrs. Mahoning Co., Court House, voted bonds Nov. 2, bridge imprvs. $2,980,000. CD 8/16.

STREETS AND ROADS

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge, defeated $50,000,000 bonds Nov. 2, highway maintenance and construction. CD 8/12.

▲ Pa., Erie—City, City Hall, voted bonds Nov. 2, street imprvs. $2,000,000. CD 8/5.

EARTHWORK, WATERWAYS

▲ Calif., Oakland—Alameda Flood Control & Water Conservation Dist., Court House, 1225 Fallon St., $3,987,000 bond election Dec. 7, flood control work in Zone 5. CD 10/22/53.

▲ Wash., Tacoma—City, City Hall, hydro dams on Cowlitz River at Mayfield and Mossyrock, $146,000,000. Harza Eng. Co., 400 W. Madison St., Chicago 6, Ill., consult. engr.

AIRPORTS

▲† Fla., Pensacola—AIR BASE—Dist. P. Wks. Officer, 6nd and Officer in Charge of Constr., U. S. Naval Base, Charleston, S. C., plans by J. B. Converse & Co., Inc., archts.-engrs., 106 St. Joseph St., Mobile 7, Ala., for FY-1955 program Naval Auxiliary Air Station. CD 2/5.

▲† N. Y., Newburgh—HANGAR, etc.—U. S. Eng. 80 Lafayette St., New York, Zone 13, plans by James C. MacKenzie, 5 E. 57 St., New York, Zone 22, alert hangar, taxiway and access road, Stewart Air Force Base. $1,000,000-$3,000,000. CD 9/10/52.

PUBLIC BUILDINGS

▲ Calif., Fresno—SCHOOL—Fresno City Unified School Dist., 2348 Mariposa St., plans by Swartz & Hyberg, Rowell Bldg., Fresno, high school, Cedar and Clinton Sts. $3,000,000. CD 6/14.

▲ Calif., Long Beach—SCHOOLS—Long Beach Unified School Dist., 715 Locust Ave., voted $32,500,000 bonds Nov. 2, schools. CD 8/13.

▲ Calif., San Diego—HALL OF JUSTICE—San Diego Co., Civic Center, San Diego, voted $8,400,000 bonds, Hall of Justice and Jail. CD 9/2.

▲ Conn., Hartford—INDUSTRIAL CENTER—City, Carleton F. Sharpe, mgr., 550 Main St., industrial center on 196-acre tract at Brainard Field, $5,000,000-$6,000,000.

▲ Ill., Evanston—SCHOOL—Evanston Twp. High School, 1600 Dodge St., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, 1 or 2 story, structural steel high school addn. $2,000,000.

▲ Ill., Springfield—SCHOOLS—City, City Hall, voted $4,895,000 bonds, school bldg. program, incl. 5 new schools, 5 existing school addns., etc. CD 8/13.

▲ Kan., Manhattan—SCHOOL—Bd. Educ. voted $1,150,000 bonds Nov. 2, high school. $2,000,000. CD 10/14.

(Continued on page 44)

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DI-MET
MODEL 100

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Let this low-cost 7½ h.p. concrete cutter help you on all maintenance and repair jobs! Light, powerful, easy to handle in tight spots. Blade mounts on either spindle end; lowers and raises hydraulically. Accessory coolant tank available for independent water source. Handles up to 12" blade diameters. Ideal for municipal use; meets budget requirements. Write for descriptive circular on the Model 100. Other DI-MET concrete cutters also available.

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Carefully engineered and precision fabricated at the factory, this roof centering was quickly erected on jacks and rails for pouring the first shell, then decentered and moved to next position for pouring shells of the two other buildings.

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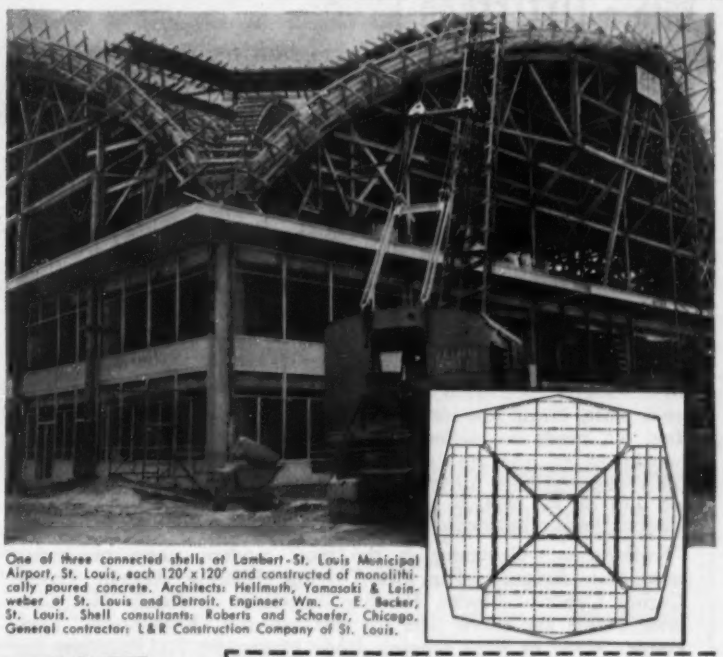

One of three connected shells at Lambert-St. Louis Municipal Airport, St. Louis, each 120' x 120' and constructed of monolithically poured concrete. Architects: Hellmuth, Yamasaki & Leinweber of St. Louis and Detroit. Engineer Wm. C. E. Becker, St. Louis. Shell consultants: Roberts and Schaefer, Chicago. General contractor: L & R Construction Company of St. Louis.

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(Continued from page 42)

▲ **Kan., Witchita**—SCHOOL—Bd. Educ., 428 S. Broadway, voted $7,410,000 bonds Nov. 2, 2 intermediate schools, 10 elementary schools. CD 4/21/53.

▲ **Ky., Henderson**—POWER PLANT—City, voted $3,000,000 bonds Nov. 2, power plant addn. Burns & McDonnell Eng. Co., P. O. Box 7088, Kansas City, Mo., consult. engr.

▲ **Md., Baltimore**—SCHOOLS—Bd. Educ., 5 E. 25 St., Zone 18, voted bonds Nov. 2, schools, $20,000,000. R. E. L. Williams, 410 Municipal Bldg., Zone 2, bldg. constr. engr. CD 6/28.

▲ **Md., Baltimore** — POLICE STATIONS — City, Police Dpt., Baltimore, Zone 2, voted bonds Nov. 2, 6 police stations, $3,000,000. R. E. L. Williams, 410 Municipal Bldg., Zone 2, bldg. constr. engr. CD 6/28.

▲ **Mich., Pontiac**—COUNTY BLDG.—Bd. Supervs. Oakland Co., 1 Lafayette St., defeated bonds Nov. 2, county bldg., courts, offices, etc. $5,000,000. CD 8/27.

▲ **Mo., Springfield**—POWER PLANT—City, City Hall, municipal power plant, $11,127,000, Burns & McDonnell Engr. Co., 95 and Troost Sts., Kansas City, Mo., consult. engrs. CD 9/29.

▲ **Mont., Warm Springs**—HOSPITAL—State, Bd. Examiners, Helena, voted $2,000,000 bonds Nov. 2, hospital and other facilities for State Mental Hospital.

▲ **N. Y., Brooklyn**—APARTMENTS—New York City Housing Auth., 299 Broadway, New York, Zone 7, plans by Joseph & Vladeck, 1841 Broadway, New York, Zone 23, nineteen 8 and 14 story apartments for Linden Houses, tract bounded by Stanley, Van Siclen and Wortmann Aves., Vermont St. and Cogine Schenck Aves., $6,509,000 altering 1 story boiler plant for Linden Houses, bounded by Stanley, Schenck, Wortmann and Van Siclen Aves. $110,577.

▲ **N. Y., New York**—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, plans by Eggers & Higgins, 100 E. 42 St., Zone 17, Junior High School 117, 240 E. 109 St. Proj. E-29. $3,000,000.

▲ **O., Alliance**—SCHOOLS—Bd. Educ., Alliance, voted bonds Nov. 2, two grade schools, addns. to existing bldgs. $2,650,000. CD 4/24/47.

▲ **O., Findlay**—HOSPITAL—Comrs. Hancock Co., Court House, Findlay, voted $1,761,000 bonds Nov. 2, hospital. $2,500,000. CD 10/26.

▲ **Pa., Phila.**—HIGH SCHOOL—Bd. Educ., 21 and Winter Sts., plans by George M. Ewing, Western Saving Fund Bldg., Junior High School, 12 and Thompson Sts. $3,500,000.

▲ **Wash., Everett**—COLLEGE—School Bd., Everett, defeated bonds Nov. 2, Junior College Buildings, $2,000,000. H. W. Hall, Commerce Bldg., archt. CD 9/9.

▲ **Wash., Spokane**—SCHOOL—School Bd. voted bonds, high school $2,925,000. CD 9/1.

COMMERCIAL BUILDINGS

▲ **Colo., Pueblo**—HOSPITAL—Corwin Hospital, plans by John K. Monroe, archt.-engr., 810 14 St., Denver, 318-bed Corwin Hospital addn. $7,000,000.

▲ **Conn., West Hartford**—APARTMENTS, etc.—William A. Mauser, 333 North Main St., Hartford, plans by Wechsler & Schimenti, 52 W. 46 St., New York, N. Y., four 7 story deluxe apartment bldgs. and two insurance office bldgs., south of Albany Ave., bounded by Whitten Rd., Sycamore Rd. and Belknap Rd. and Asylum Ave. $2,400,000.

▲ **Ill., Chicago**—SCHOOL—Cathedral of the Holy Name, 720 N. Wabash St., Zone 11, plans by McCarthy & Smith, 69 W. Delaware St., Chicago, Zone 10, high school, State St. and Chicago Ave. $2,000,000. CD 11/17/50.

▲ **Ill., Chicago**—APARTMENT—Hoffman & Davis, attys., 33 S. Clark St., plans by Lowenburg & Lowenburg, 111 W. Monroe St., Zone 3, 22 story, incl. 252 unit, APARTMENT, Sheridan and Oakdale Sts. $3,000,000.

▲ **Mo., Kansas City**—APARTMENT—John Moore & George Miller, Victor Bldg., Kansas City, Mo., plans by Alonzo Gentry, 4 W. 13 St., Kansas City Mo., 11 story apartment, 4570 Warwich St. $3,000,000.

▲ **N. J., Newark**—COLLEGE ADDNS.—Newark College of Engineering, 367 High St., plans by John H. & Wilson C. Ely, 744 Broad St., 5 story, classrooms bldg. and 7 story auditorium library and laboratory facilities building. $3,000,000.

▲ **N. Y., New York**—CAMPUS BUILDINGS—Fordham University, Fordham Rd., plans by Voorhees, Walker, Foley & Smith, 101 Park Ave., Zone 17, Student Union Bldg., $1,500,000; Law School, $1,000,000; School of Business, $1,000,000; School of Education, $1,000,000; School of Social Service, $1,000,000; Classroom Bldg., $1,000,000; Chemistry Bldg., $1,000,000; School of Pharmacy, $500,000; Library, $500,000; Co-operative Research Center, $500,000, on campus on Fordham Rd., Bronx Boro. CD 2/15.

▲ **Tex., Houston**—BUILDING ADDN.—M.D. Anderson Foundation & Hermann Hospital Estate, 1st Natl. Bank Bldg., plans by Kenneth Franzheim & John Freeman, Jr. Associate, 802 Lovett St., 15 story, steel frame, masonry addn. to existing Hermann Prof Bldg., 6410 Fannin St. $2,750,000. Bernard Johnson & Assocs., 4928 Travis St., Ward Butterwick, 2303 LaBranch St., consult. engrs. CD 11/5.

▲ **Wash., Burien**—SHOPPING CENTER—H. M. Siler, Burien, plans by Steinhart, Stanley & Theriault, Medical Arts Bldg., Seattle, Zone 4, 2 story, rein.-con. 108x432 ft., shopping center with parking facilities. $3,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Richmond**—PLANT—Standard Oil Co. of California, 225 Bush St., San Francisco, Isophthalic Mfg. Plant. $8,000,000. CD 3/30/50

▲ **Fla., Pensacola**—PLANT—United Gas Corp., 1525 Fairfield Ave., Shreveport, La., petrochemical plant. $28,000,000.

▲ **Okla., Hugo**—PAPER MILL—Forest Products, Inc., Dierks Bldg., Kansas City, Mo., newsprint paper mill for Forest Products, Inc., in the Dierks Lumber Co. property. $12,000,000. Fred Dierks, Jr., Dierks Bldg., Kansas City, Mo., engr.

▲ **S. D., Rapid City**—REFINERY—Great Plains Refinery & Development Co., Rapid City, oil refinery. $3,000,000.

▲ **Tex., Orange**—WAREHOUSING—Acheson Dispersed Pigments Co., c/o Perch C. Buck, vice pres., Orange, warehousing, $250,000; plastic mfg. plant, $4,500,000, 10-acre tract in West Orange Industrial Dist.

▲ **Wash., Pasco**—PLANT—Pacific Oil Seed, Inc., Pasco, safflower processing plant. $2,500,000.

▲ **Ont., Fort William**—PLANT—Husky Oil & Refining Ltd., Bamlett Bldg., Calgary, Alta., asphalt refining and mfg. plant, on 170-acre site. $13,000,000.

UNCLASSIFIED

▲ **Md., Baltimore**—ZOO AND RECREATION PROJECTS—City, Bureau Recreation & Parks, N. Calvert St., Zone 2, voted bonds Nov. 2, expansion of zoo and 28 recreation projs. $2,400,000. R. E. L. Williams, 410 Municipal Bldg., Zone 2, bldg. constr. engr. CD 7/21.

▲ **Md., Baltimore**—CONDUITS—City, Bureau Mechanical & Electric Services, Municipal Bldg., Zone 2, voted bonds Nov. 2, conduit $1,000,000; and street lighting, $2,000,000. CD 7/21.

▲ **Md., Baltimore** — STREET LIGHTS — City, Bureau Electric Service, Municipal Bldg., Zone 2, voted bonds Nov. 2, converting gas street lights to electric, $2,000,000. CD 7/21.

▲ **N. J., Hoboken**—PIERS—Port of New York Authority 111 8th Ave., New York 11, N. Y., Pier A at Hoboken-Port Authority Piers. $4,500,000. Parsons, Brinkerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y., engrs. CD 5/16/52.

▲ **Wash., Seattle**—LIGHTING—City, County-City Bldg., Zone 4, defeated bonds, 2 mercury vapor street lighting sys. on arterials in areas annexed since 1948. $460,000; on remaining residential streets, $4,140,000. CD 8/23.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 30 Massachusetts December 6 Connecticut
STREETS AND ROADS
November 30 Massachusetts December 3 Vermont
December 6 Connecticut

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Vappi & Co., Inc.**, 240 Sidney St., Cambridge, Mass. CA Approx. **$1,000,000.** WAREHOUSE, NEEDHAM, MASS. Kraft Foods Co., 500 Peshtigo Court, Chicago, Ill. Bids Oct. 27. CD 10/12.

MIDDLE ATLANTIC

▲ **Pa., Harrisburg**—STATE OFFICE—BA 12/15—General State Authority, 18 and Herr Sts., Harrisburg, state office, Forster St. near Capitol Park, **$6,500,000.** Plans deposit $50. A. F. Jones, c/o owner, ch. engr. Lacy, Atherton & Davis, Hotel Sterling, Wilkes-Barre, Pa., archts. CD 4/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Jones Beach State Parkway Auth., Administration Bldg., Belmont Lake State Park, Babylon, **Hendrickson Bros., Inc.**, 63 N. Central Ave., Valley Stream, N. Y. LB **$5,510,000.** Contr. No. 2 Southern State Parkway to East Gate Blvd., grading, drainage, paving, grade separations for extension of Meadowbrook State Parkway, Nassau Co. Bids Nov. 16. CD 10/22.

▲ **Frank Mascali & Sons, Inc.**, 120 St. and 31 Ave., Flushing, N. Y. LB **$2,332,785.** grading, constr. retaining walls, drainage facilities, grade separation structures and electrical sys. and paving where indicated together with all other work incidental thereto in Brooklyn-Queens Expressway (Connecting Hy.) from 38 Ave. to Northern Blvd., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens, 24, N. Y. Bids Nov. 9. CD 10/12.

▲ **Caye Constr. Co.**, 356 Fulton St., Brooklyn **1, N. Y.** LB **$3,552,733,** structures and equipment;
H. Sand & Co., Inc., 11 Park Ave., New York **7, N. Y.** LB **$81,300,** heating;
Charles F. Zweifel & Co., Inc., 148 E. 40 St., New York 17, N. Y. LB **$296,500.** electrical work for constr. Oakwood-Beach Pollution Control Proj., Richmond Boro, NEW YORK. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 17. CD 11/8.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,
C. J. Langenfelder & Son, Inc., 8427 Pulaski Hy., Baltimore, Md., CA **$2,862,426,** 4.1 mi. (Sec. 35-H) Northeastern Exten. of Turnpike, Lower Milford, Upper Milford and Lower Macungie Twps. and Emmaus Boro, Lehigh Co. Bids Oct. 14. CD 10/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John M. Kokkins & Stephen C. Lyras**, 660 Madison Ave., New York 21, N. Y. Owner Builds, **$4,000,000.** APARTMENT, 404-420 E. 53 St. and 399-423 E. 52 St., NEW YORK, N. Y. CD 4/15.

▲ **Hegeman Harris Co., Inc.**, 331 Madison Ave., New York, N. Y., CA, **$2,500,000,** 11 story OFFICE, Connecticut and N St. N. W., WASH., D. C. International Assn. of Machinists, 9 and Mt. Vernon Pl. N. W., Wash., D. C. CD 3/25.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 3 Tennessee
STREETS AND ROADS
December 3 Tennessee

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **T. L. James & Co., Inc.**, Ruston, La. and **W. R. Aldrich & Co.**, Box 1751, Baton Rouge, La. LB **$3,514,896,** est. $3,000,000. (jointly) apron and taxiway paving Lake Charles Air Force Base, ENG-26, LAKE CHARLES, LA. U. S. Eng., P.O. Box 1229, Galveston, Tex. Bids Nov. 9. CD 10/22.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sollitt Constr. Co., Inc.**, 301 S. Columbia St., South Bend, Ind., CA Approx. **$26,400,000.** 225,000 kw. steam-electric GENERATING UNIT, GLEN LYN, VA. Appalachian Electric Power Co., 40 Franklin Rd., Roanoke, Va. CD 9/24.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **O., Batavia**—BA 12/28—Bd. Comrs. Clermont Co., Court House, water distr. sys., incl. water mains, elevated storage tanks, booster pumping station, small treatment plant. $2,500,000. Plans deposit $115 CD 9/15.

▲ **O., Cleveland**—BA 12/30—City, Dpt. P. Utilities, City Hall, Clague Road Water Intake. $5,500,000 Plans deposit $50. Havens & Emerson, Leader Bldg., Zone 14, consult. engrs. George W. Hamlin, c/o owner, utilities eng. CD 7/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis,
Arcole-Midwest Corp., 3225 Main St., Evanston, Ill., LB, **$5,252,581,** Contracts 28, 29 and 30, Indiana East-West Toll Road, St. Joseph Co. Bids Nov. 17.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Jones-Hettelsater Constr. Co.**, 1911 Baltimore St., Kansas City, Mo. CA **$5,000,000.** GRAIN STORAGE TERMINAL, CHICAGO, ILL. Glidden Co., Union Commerce Bldg., Cleveland, O. David N. Burruss, Jr., c/o owner, engr.

▲ **Carey Homes, Inc.**, 229 Gratiot St., Detroit, Mich. Owner Builds. **$2,600,000.** Holiday Farms Development, 275 single HOUSES, Crescent Lake Rd. and Joangay Blvd., WATERFORD, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 2 Missouri
STREETS AND ROADS
December 2 Kansas, Missouri

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Century Constructors, Inc.**, Hy. 100 and South Lexington Ave., Mendota, Minn. Owner Builds. **$4,000,000.** Suburban SHOPPING CENTER and HOUSING DEVELOPMENT, 150 brick houses, retail store space, etc., MENDOTA (P.O. ST. PAUL), MINN.

▲ **Palms Center Corp.**, c/o Oscar Holcombe & Sterling Hogan, Sr., First National Bank Bldg., Houston, Tex., cancelled bids for Phase 2 SHOPPING CENTER, HOUSTON, TEX. Est. **$3,500,000.** Will re-advertise. CD 10/5.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 8 California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
L. C. Smith Co., 225 10 Ave., San Mateo, Calif., CA, **$1,198,516,** grading, surf. 2.1 mi., 4 bridges etc., between Los Gatos and Roberts Rd., Santa Clara Co. Bids Oct. 27, awarded Nov. 12. CD 11/9, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 8 Ontario

SOON LETS CONTRACT—BUILDINGS

▲ **Ont., Toronto**—APARTMENT—Kensington Industries, Inc., 1224 St. Catherine St. W., Montreal, Que. soon lets contract 3 blocks, 5 story, each 54x470 ft., and 2 blocks, 9 story, each 54x170 ft., apartment project, Dale and McKenzie Aves. $3,500,000. Crang & Boake, 79 Huntley St., archts.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Laurendale Homes Ltd.**, 5210 Van Horne Ave., Montreal, Que., Owner Builds. **$9,800,000,** 800 cottages in HOUSING DEVELOPMENT on new streets, VILLE LA SALLE, QUE.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

▲ **India**—BA 12/30—At office Chief Engineer Irrigation Dpt., Uttar Pradesh, Lucknow, India, constr. 296 ft high dam across Rihand River in District of Mirzapur, incl. rein.-con. power house structure, about 50 mi by road from Robertsganj Railway Station (Northern Ry.) $25,200,000.

(Proposal Advertisements see pp. 50 to 53)

Briefs from the Yeomans Guard

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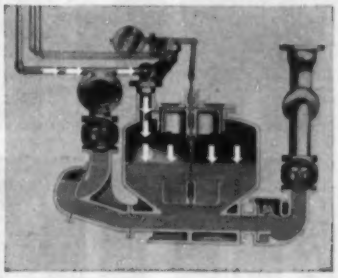

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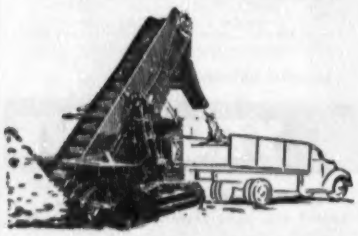

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UNIT PRICES

Excavation Bid Lands

Delaware Air Base

Six of 12 contractors bidding on improvements for Dover Air Force Base, Delaware, went under the $3,285,000 engineer's estimate. Lowest at $2,834,000 was C. J. Langenfelder & Son Inc., only 2% below second bid, 14% under the estimate.

The $67,200 difference between first and second bidder's prices on unclassified excavation was enough to swing the award, since it is more than the $66,700 total spread between them.

The existing north-south runway pavement, 150 x 7,000 ft, will be strengthened, widened and lengthened to provide a paved surface 200 x 9,600 ft. Finished pavement will have portland cement concrete surfaces 19 in. thick on 6 in. of select material base course for 1,000 ft and 13- to 18-in. overlay for 1,000 ft. Asphaltic concrete flexible pavement will cover 7,600 ft. Shoulders 200 ft wide on each side of the runway pavement will be graded, topsoiled and seeded.

Construction of a primary taxiway 75 x 9,050 ft with 50-ft shoulders is also part of the job, as are two warm-up pads, adjacent connecting taxiways, and runway and taxiway lighting.

Completion time is 450 days.

Minimum wage rates set by the Department of Labor allow $2.925 per hour to carpenters and cement masons, $3.25 to electricians, $3.08 to reinforcing ironworkers, $1.70 to pipe layers, $2.70 to painters.

Bidders include:

1	C. J. Langenfelder & Son, Inc., Baltimore, Md.	$2,833,743
2	Williams Constr. Co., Baltimore, Md.	2,900,458
12	Mayer Bros., Altoona, Pa.	4,680,910
EE	U. S. Corps of Engineers, Philadelphia, Pa. (including profit)	3,285,160

Bids: 9-24-55 Item	Unit	Quantity	Unit Prices 1 C	2
Clearing	ls	1	$11,700	$21,000
Clearing and grubbing	ls	1	20,700	23,000
Rem & demolish 12 bldgs	ls	1	5,000	6,000
Exc, uncl	cy	560,000	0.37	0.49
Borrow, uncl	cy	53,700	0.62	0.65
Filter matl, coarse	cy	2,040	6.28	6.00
fine	cy	9,160	4.50	4.00
Conc for drain structs				
Plain hdwall, crdle, plug	cy	600	68.00	60.00
gutters	cy	4	40.00	50.00
aprons	cy	40	40.00	35.00
Reinf junction boxes	cy	80	75.00	80.00
inlets	cy	40	75.00	90.00
Culv P & storm dr				
ACCMP or RCCP..				
12" 16 ga	lf	98	4.00	3.50
24" 16 ga	lf	336	7.30	6.75
30" 12 ga....24" ES	lf	540	7.75	8.25
36" 14 ga....or RCCP	lf	1,066	12.50	10.50
48" 12 ga....42"	lf	40	17.90	15.00
60" 10 ga (3) 54" (3) ES.	lf	658	78.30	72.00
66" 10 ga (4) 66" (3) ES.	lf	558	111.25	105.00
43x27" arch, 23 ga..... 30"	lf	46	11.70	15.00
65x40" arch, 12 ga..... 42" (2)	lf	131	41.00	27.00
72" 10 ga (4) 72" (3) ES.	lf	1,000	135.00	120.00
79x49" arch, 12 ga..... 48" (2)	lf	40	55.00	45.00
86x54" arch, 12 ga..... 54" (2)	lf	40	65.00	60.00
94x59" arch, 12 ga..... 60" (2)	lf	40	75.00	75.00
101x64" arch, 12 ga..... 66" (2)	lf	40	85.00	90.00
108x69" arch, 12 ga..... 72" (2)	lf	40	95.00	105.00
115x74" arch, 12 ga..... 78" (2)	lf	40	105.00	120.00
122x78" arch, 12 ga..... 84" (2)	lf	40	115.00	135.00
129x83" arch, 12 ga..... 90" (2)	lf	40	125.00	150.00
137x88" arch, 12 ga..... 96" (2)	lf	40	135.00	165.00
144x93" arch, 12 ga..... 102" (2)	lf	40	145.00	180.00
151x98" arch, 12 ga..... 108" (2)	lf	40	155.00	195.00
158x103" arch, 12 ga..... 114" (2)	lf	40	165.00	210.00
166x107" arch, 12 ga..... 120" (2)	lf	40	175.00	225.00
173x112" arch, 12 ga..... 126" (2)	lf	40	185.00	240.00
180x117" arch, 12 ga..... 132" (2)	lf	40	195.00	255.00
187x122" arch, 12 ga..... 138" (2)	lf	40	205.00	270.00
194x127" arch, 12 ga..... 144" (2)	lf	40	215.00	285.00
201x132" arch, 12 ga..... 150" (2)	lf	40	225.00	300.00
209x137" arch, 12 ga..... 156" (2)	lf	40	235.00	315.00
216x142" arch, 12 ga..... 162" (2)	lf	40	245.00	330.00
223x147" arch, 12 ga..... 168" (2)	lf	40	255.00	345.00
230x152" arch, 12 ga..... 174" (2)	lf	40	265.00	360.00
238x156" arch, 12 ga..... 180" (2)	lf	40	275.00	375.00
245x161" arch, 12 ga..... 186" (2)	lf	40	285.00	390.00
252x166" arch, 12 ga..... 192" (2)	lf	40	295.00	405.00
259x171" arch, 12 ga..... 198" (2)	lf	40	305.00	420.00
266x176" arch, 12 ga..... 204" (2)	lf	40	315.00	435.00
273x181" arch, 12 ga..... 210" (2)	lf	40	325.00	450.00
281x185" arch, 12 ga..... 216" (2)	lf	40	335.00	465.00
288x190" arch, 12 ga..... 222" (2)	lf	40	345.00	480.00
295x195" arch, 12 ga..... 228" (2)	lf	40	355.00	495.00
302x200" arch, 12 ga..... 234" (2)	lf	40	365.00	510.00
309x205" arch, 12 ga..... 240" (2)	lf	40	375.00	525.00
316x210" arch, 12 ga..... 246" (2)	lf	40	385.00	540.00
323x215" arch, 12 ga..... 252" (2)	lf	40	395.00	555.00
330x220" arch, 12 ga..... 258" (2)	lf	40	405.00	570.00
337x225" arch, 12 ga..... 264" (2)	lf	40	415.00	585.00
344x230" arch, 12 ga..... 270" (2)	lf	40	425.00	600.00
351x235" arch, 12 ga..... 276" (2)	lf	40	435.00	615.00
358x240" arch, 12 ga..... 282" (2)	lf	40	445.00	630.00
365x245" arch, 12 ga..... 288" (2)	lf	40	455.00	645.00
372x250" arch, 12 ga..... 294" (2)	lf	40	465.00	660.00
379x255" arch, 12 ga..... 300" (2)	lf	40	475.00	675.00
386x260" arch, 12 ga..... 306" (2)	lf	40	485.00	690.00
393x265" arch, 12 ga..... 312" (2)	lf	40	495.00	705.00
400x270" arch, 12 ga..... 318" (2)	lf	40	505.00	720.00
407x275" arch, 12 ga..... 324" (2)	lf	40	515.00	735.00
414x280" arch, 12 ga..... 330" (2)	lf	40	525.00	750.00
421x285" arch, 12 ga..... 336" (2)	lf	40	535.00	765.00
428x290" arch, 12 ga..... 342" (2)	lf	40	545.00	780.00
435x295" arch, 12 ga..... 348" (2)	lf	40	555.00	795.00
442x300" arch, 12 ga..... 354" (2)	lf	40	565.00	810.00
449x305" arch, 12 ga..... 360" (2)	lf	40	575.00	825.00
456x310" arch, 12 ga..... 366" (2)	lf	40	585.00	840.00
463x315" arch, 12 ga..... 372" (2)	lf	40	595.00	855.00
470x320" arch, 12 ga..... 378" (2)	lf	40	605.00	870.00
477x325" arch, 12 ga..... 384" (2)	lf	40	615.00	885.00
484x330" arch, 12 ga..... 390" (2)	lf	40	625.00	900.00
491x335" arch, 12 ga..... 396" (2)	lf	40	635.00	915.00
498x340" arch, 12 ga..... 402" (2)	lf	40	645.00	930.00
505x345" arch, 12 ga..... 408" (2)	lf	40	655.00	945.00
512x350" arch, 12 ga..... 414" (2)	lf	40	665.00	960.00
519x355" arch, 12 ga..... 420" (2)	lf	40	675.00	975.00
526x360" arch, 12 ga..... 426" (2)	lf	40	685.00	990.00
533x365" arch, 12 ga..... 432" (2)	lf	40	695.00	1,005.00
540x370" arch, 12 ga..... 438" (2)	lf	40	705.00	1,020.00
547x375" arch, 12 ga..... 444" (2)	lf	40	715.00	1,035.00
554x380" arch, 12 ga..... 450" (2)	lf	40	725.00	1,050.00
561x385" arch, 12 ga..... 456" (2)	lf	40	735.00	1,065.00
568x390" arch, 12 ga..... 462" (2)	lf	40	745.00	1,080.00
575x395" arch, 12 ga..... 468" (2)	lf	40	755.00	1,095.00
582x400" arch, 12 ga..... 474" (2)	lf	40	765.00	1,110.00
589x405" arch, 12 ga..... 480" (2)	lf	40	775.00	1,125.00
596x410" arch, 12 ga..... 486" (2)	lf	40	785.00	1,140.00
603x415" arch, 12 ga..... 492" (2)	lf	40	795.00	1,155.00
610x420" arch, 12 ga..... 498" (2)	lf	40	805.00	1,170.00
617x425" arch, 12 ga..... 504" (2)	lf	40	815.00	1,185.00
624x430" arch, 12 ga..... 510" (2)	lf	40	825.00	1,200.00
631x435" arch, 12 ga..... 516" (2)	lf	40	835.00	1,215.00
638x440" arch, 12 ga..... 522" (2)	lf	40	845.00	1,230.00
645x445" arch, 12 ga..... 528" (2)	lf	40	855.00	1,245.00
652x450" arch, 12 ga..... 534" (2)	lf	40	865.00	1,260.00
659x455" arch, 12 ga..... 540" (2)	lf	40	875.00	1,275.00
666x460" arch, 12 ga..... 546" (2)	lf	40	885.00	1,290.00
673x465" arch, 12 ga..... 552" (2)	lf	40	895.00	1,305.00
680x470" arch, 12 ga..... 558" (2)	lf	40	905.00	1,320.00
687x475" arch, 12 ga..... 564" (2)	lf	40	915.00	1,335.00
694x480" arch, 12 ga..... 570" (2)	lf	40	925.00	1,350.00
701x485" arch, 12 ga..... 576" (2)	lf	40	935.00	1,365.00
708x490" arch, 12 ga..... 582" (2)	lf	40	945.00	1,380.00
715x495" arch, 12 ga..... 588" (2)	lf	40	955.00	1,395.00
722x500" arch, 12 ga..... 594" (2)	lf	40	965.00	1,410.00
729x505" arch, 12 ga..... 600" (2)	lf	40	975.00	1,425.00
736x510" arch, 12 ga..... 606" (2)	lf	40	985.00	1,440.00
743x515" arch, 12 ga..... 612" (2)	lf	40	995.00	1,455.00
750x520" arch, 12 ga..... 618" (2)	lf	40	1,005.00	1,470.00
757x525" arch, 12 ga..... 624" (2)	lf	40	1,015.00	1,485.00
764x530" arch, 12 ga..... 630" (2)	lf	40	1,025.00	1,500.00
771x535" arch, 12 ga..... 636" (2)	lf	40	1,035.00	1,515.00
778x540" arch, 12 ga..... 642" (2)	lf	40	1,045.00	1,530.00
785x545" arch, 12 ga..... 648" (2)	lf	40	1,055.00	1,545.00
792x550" arch, 12 ga..... 654" (2)	lf	40	1,065.00	1,560.00
799x555" arch, 12 ga..... 660" (2)	lf	40	1,075.00	1,575.00
806x560" arch, 12 ga..... 666" (2)	lf	40	1,085.00	1,590.00
813x565" arch, 12 ga..... 672" (2)	lf	40	1,095.00	1,605.00
820x570" arch, 12 ga..... 678" (2)	lf	40	1,105.00	1,620.00
827x575" arch, 12 ga..... 684" (2)	lf	40	1,115.00	1,635.00
834x580" arch, 12 ga..... 690" (2)	lf	40	1,125.00	1,650.00
841x585" arch, 12 ga..... 696" (2)	lf	40	1,135.00	1,665.00
848x590" arch, 12 ga..... 702" (2)	lf	40	1,145.00	1,680.00
855x595" arch, 12 ga..... 708" (2)	lf	40	1,155.00	1,695.00
862x600" arch, 12 ga..... 714" (2)	lf	40	1,165.00	1,710.00
869x605" arch, 12 ga..... 720" (2)	lf	40	1,175.00	1,725.00
876x610" arch, 12 ga..... 726" (2)	lf	40	1,185.00	1,740.00
883x615" arch, 12 ga..... 732" (2)	lf	40	1,195.00	1,755.00
890x620" arch, 12 ga..... 738" (2)	lf	40	1,205.00	1,770.00
897x625" arch, 12 ga..... 744" (2)	lf	40	1,215.00	1,785.00
904x630" arch, 12 ga..... 750" (2)	lf	40	1,225.00	1,800.00
911x635" arch, 12 ga..... 756" (2)	lf	40	1,235.00	1,815.00
918x640" arch, 12 ga..... 762" (2)	lf	40	1,245.00	1,830.00
925x645" arch, 12 ga..... 768" (2)	lf	40	1,255.00	1,845.00
932x650" arch, 12 ga..... 774" (2)	lf	40	1,265.00	1,860.00
939x655" arch, 12 ga..... 780" (2)	lf	40	1,275.00	1,875.00
946x660" arch, 12 ga..... 786" (2)	lf	40	1,285.00	1,890.00
953x665" arch, 12 ga..... 792" (2)	lf	40	1,295.00	1,905.00
960x670" arch, 12 ga..... 798" (2)	lf	40	1,305.00	1,920.00
967x675" arch, 12 ga..... 804" (2)	lf	40	1,315.00	1,935.00
974x680" arch, 12 ga..... 810" (2)	lf	40	1,325.00	1,950.00
981x685" arch, 12 ga..... 816" (2)	lf	40	1,335.00	1,965.00
988x690" arch, 12 ga..... 822" (2)	lf	40	1,345.00	1,980.00
995x695" arch, 12 ga..... 828" (2)	lf	40	1,355.00	1,995.00
1002x700" arch, 12 ga..... 834" (2)	lf	40	1,365.00	2,010.00
1009x705" arch, 12 ga..... 840" (2)	lf	40	1,375.00	2,025.00
1016x710" arch, 12 ga..... 846" (2)	lf	40	1,385.00	2,040.00
1023x715" arch, 12 ga..... 852" (2)	lf	40	1,395.00	2,055.00
1030x720" arch, 12 ga..... 858" (2)	lf	40	1,405.00	2,070.00
1037x725" arch, 12 ga..... 864" (2)	lf	40	1,415.00	2,085.00
1044x730" arch, 12 ga..... 870" (2)	lf	40	1,425.00	2,100.00
1051x735" arch, 12 ga..... 876" (2)	lf	40	1,435.00	2,115.00
1058x740" arch, 12 ga..... 882" (2)	lf	40	1,445.00	2,130.00
1065x745" arch, 12 ga..... 888" (2)	lf	40	1,455.00	2,145.00
1072x750" arch, 12 ga..... 894" (2)	lf	40	1,465.00	2,160.00
1079x755" arch, 12 ga..... 900" (2)	lf	40	1,475.00	2,175.00
1086x760" arch, 12 ga..... 906" (2)	lf	40	1,485.00	2,190.00
1093x765" arch, 12 ga..... 912" (2)	lf	40	1,495.00	2,205.00
1100x770" arch, 12 ga..... 918" (2)	lf	40	1,505.00	2,220.00
1107x775" arch, 12 ga..... 924" (2)	lf	40	1,515.00	2,235.00
1114x780" arch, 12 ga..... 930" (2)	lf	40	1,525.00	2,250.00
1121x785" arch, 12 ga..... 936" (2)	lf	40	1,535.00	2,265.00
1128x790" arch, 12 ga..... 942" (2)	lf	40	1,545.00	2,280.00
1135x795" arch, 12 ga..... 948" (2)	lf	40	1,555.00	2,295.00
1142x800" arch, 12 ga..... 954" (2)	lf	40	1,565.00	2,310.00
1149x805" arch, 12 ga..... 960" (2)	lf	40	1,575.00	2,325.00
1156x810" arch, 12 ga..... 966" (2)	lf	40	1,585.00	2,340.00
1163x815" arch, 12 ga..... 972" (2)	lf	40	1,595.00	2,355.00
1170x820" arch, 12 ga..... 978" (2)	lf	40	1,605.00	2,370.00
1177x825" arch, 12 ga..... 984" (2)	lf	40	1,615.00	2,385.00
1184x830" arch, 12 ga..... 990" (2)	lf	40	1,625.00	2,400.00
1191x835" arch, 12 ga..... 996" (2)	lf	40	1,635.00	2,415.00
1198x840" arch, 12 ga..... 1002" (2)	lf	40	1,645.00	2,430.00
1205x845" arch, 12 ga..... 1008" (2)	lf	40	1,655.00	2,445.00
1212x850" arch, 12 ga..... 1014" (2)	lf	40	1,665.00	2,460.00
1219x855" arch, 12 ga..... 1020" (2)	lf	40	1,675.00	2,475.00
1226x860" arch, 12 ga..... 1026" (2)	lf	40	1,685.00	2,490.00
1233x865" arch, 12 ga..... 1032" (2)	lf	40	1,695.00	2,505.00
1240x870" arch, 12 ga..... 1038" (2)	lf	40	1,705.00	2,520.00
1247x875" arch, 12 ga..... 1044" (2)	lf	40	1,715.00	2,535.00
1254x880" arch, 12 ga..... 1050" (2)	lf	40	1,725.00	2,550.00
1261x885" arch, 12 ga..... 1056" (2)	lf	40	1,735.00	2,565.00
1268x890" arch, 12 ga..... 1062" (2)	lf	40	1,745.00	2,580.00
1275x895" arch, 12 ga..... 1068" (2)	lf	40	1,755.00	2,595.00
1282x900" arch, 12 ga..... 1074" (2)	lf	40	1,765.00	2,610.00
1289x905" arch, 12 ga..... 1080" (2)	lf	40	1,775.00	2,625.00
1296x910" arch, 12 ga..... 1086" (2)	lf	40	1,785.00	2,640.00
1303x915" arch, 12 ga..... 1092" (2)	lf	40	1,795.00	2,655.00
1310x920" arch, 12 ga..... 1098" (2)	lf	40	1,805.00	2,670.00
1317x925" arch, 12 ga..... 1104" (2)	lf	40	1,815.00	2,685.00
1324x930" arch, 12 ga..... 1110" (2)	lf	40	1,825.00	2,700.00
1331x935" arch, 12 ga..... 1116" (2)	lf	40	1,835.00	2,715.00
1338x940" arch, 12 ga..... 1122" (2)	lf	40	1,845.00	2,730.00
1345x945" arch, 12 ga..... 1128" (2)	lf	40	1,855.00	2,745.00
1352x950" arch, 12 ga..... 1134" (2)	lf	40	1,865.00	2,760.00
1359x955" arch, 12 ga..... 1140" (2)	lf	40	1,875.00	2,775.00
1366x960" arch, 12 ga..... 1146" (2)	lf	40	1,885.00	2,790.00
1373x965" arch, 12 ga..... 1152" (2)	lf	40	1,895.00	2,805.00
1380x970" arch, 12 ga..... 1158" (2)	lf	40	1,905.00	2,820.00
1387x975" arch, 12 ga..... 1164" (2)	lf	40	1,915.00	2,835.00
1394x980" arch, 12 ga..... 1170" (2)	lf	40	1,925.00	2,850.00
1401x985" arch, 12 ga..... 1176" (2)	lf	40	1,935.00	2,865.00
1408x990" arch, 12 ga..... 1182" (2)	lf	40	1,945.00	2,880.00
1415x995" arch, 12 ga..... 1188" (2)	lf	40	1,955.00	2,895.00
1422x1000" arch, 12 ga..... 1194" (2)	lf	40	1,965.00	2,910.00
1429x1005" arch, 12 ga..... 1200" (2)	lf	40	1,975.00	2,925.00
1436x1010" arch, 12 ga..... 1206" (2)	lf	40	1,985.00	2,940.00
1443x1015" arch, 12 ga..... 1212" (2)	lf	40	1,995.00	2,955.00
1450x1020" arch, 12 ga..... 1218" (2)	lf	40	2,005.00	2,970.00
1457x1025" arch, 12 ga..... 1224" (2)	lf	40	2,015.00	2,985.00
1464x1030" arch, 12 ga..... 1230" (2)	lf	40	2,025.00	3,000.00
1471x1035" arch, 12 ga..... 1236" (2)	lf	40	2,035.00	3,015.00
1478x1040" arch, 12 ga..... 1242" (2)	lf	40	2,045.00	3,030.00
1485x1045" arch, 12 ga..... 1248" (2)	lf	40	2,055.00	3,045.00
1492x1050" arch, 12 ga..... 1254" (2)	lf	40	2,065.00	3,060.00
1499x1055" arch, 12 ga..... 1260" (2)	lf	40	2,075.00	3,075.00
1506x1060" arch, 12 ga..... 1266" (2)	lf	40	2,085.00	3,090.00
1513x1065" arch, 12 ga..... 1272" (2)	lf	40	2,095.00	3,105.00
1520x1070" arch, 12 ga..... 1278" (2)	lf	40	2,105.00	3,120.00
1527x1075" arch, 12 ga..... 1284" (2)	lf	40	2,115.00	3,135.00
1534x1080" arch, 12 ga..... 1290" (2)	lf	40	2,125.00	3,150.00
1541x1085" arch, 12 ga..... 1296" (2)	lf	40	2,135.00	3,165.00
1548x1090" arch, 12 ga..... 1302" (2)	lf	40	2,145.00	3,180.00
1555x1095" arch, 12 ga..... 1308" (2)	lf	40	2,155.00	3,195.00
1562x1100" arch, 12 ga..... 1314" (2)	lf	40	2,165.00	3,210.00
1569x1105" arch, 12 ga..... 1320" (2)	lf	40	2,175.00	3,225.00
1576x1110" arch, 12 ga..... 1326" (2)	lf	40	2,185.00	3,240.00
1583x1115" arch, 12 ga..... 1332" (2)	lf	40	2,195.00	3,255.00
1590x1120" arch, 12 ga..... 1338" (2)	lf	40	2,205.00	3,270.00
1597x1125" arch, 12 ga..... 1344" (2)	lf	40	2,215.00	3,285.00
1604x1130" arch, 12 ga..... 1350" (2)	lf	40	2,225.00	3,300.00
1611x1135" arch, 12 ga..... 1356" (2)	lf	40	2,235.00	3,315.00
1618x1140" arch, 12 ga..... 1362" (2)	lf	40	2,245.00	3,330.00
1625x1145" arch, 12 ga..... 1368" (2)	lf	40	2,255.00	3,345.00
1632x1150" arch, 12 ga..... 1374" (2)	lf	40	2,265.00	3,360.00
1639x1155" arch, 12 ga..... 1380" (2)	lf	40	2,275.00	3,375.00
1646x1160" arch, 12 ga..... 1386" (2)	lf	40	2,285.00	3,390.00
1653x1165" arch, 12 ga..... 1392" (2)	lf	40	2,295.00	3,405.00
1660x1170" arch, 12 ga..... 1398" (2)	lf	40	2,305.00	3,420.00
1667x1175" arch, 12 ga..... 1404" (2)	lf	40	2,315.00	3,435.00
1674x1180" arch, 12 ga..... 1410" (2)	lf	40	2,325.00	3,450.00
1681x1185" arch, 12 ga..... 1416" (2)	lf	40	2,335.00	3,465.00
1688x1190" arch, 12 ga..... 1422" (2)	lf	40	2,345.00	3,480.00
1695x1195" arch, 12 ga..... 1428" (2)	lf	40	2,355.00	3,495.00
1702x1200" arch, 12 ga..... 1434" (2)	lf	40	2,365.00	3,510.00
1709x1205" arch, 12 ga..... 1440" (2)	lf	40	2,375.00	3,525.00
1716x1210" arch, 12 ga..... 1446" (2)	lf	40	2,385.00	3,540.00
1723x1215" arch, 12 ga..... 1452" (2)	lf	40	2,395.00	3,555.00
1730x1220" arch, 12 ga..... 1458" (2)	lf	40	2,405.00	3,570.00
1737x1225" arch, 12 ga..... 1464" (2)	lf	40	2,415.00	3,585.00
1744x1230" arch, 12 ga..... 1470" (2)	lf	40	2,425.00	3,600.00
1751x1235" arch, 12 ga..... 1476" (2)	lf	40	2,435.00	3,615.00
1758x1240" arch, 12 ga..... 1482" (2)	lf	40	2,445.00	3,630.00
1765x1245" arch, 12 ga..... 1488" (2)	lf	40	2,455.00	3,645.00
1772x1250" arch, 12 ga..... 1494" (2)	lf	40	2,465.00	3,660.00
1779x1255" arch, 12 ga..... 1500" (2)	lf	40	2,475.00	3,675.00
1786x1260" arch, 12 ga..... 1506" (2)	lf	40	2,485.00	3,690.00
1793x1265" arch, 12 ga..... 1512" (2)	lf	40	2,495.00	3,705.00
1800x1270" arch, 12 ga..... 1518" (2)	lf	40	2,505.00	3,720.00
1807x1275" arch, 12 ga..... 1524" (2)	lf	40	2,515.00	3,735.00
1814x1280" arch, 12 ga..... 1530" (2)	lf	40	2,525.00	3,750.00
1821x1285" arch, 12 ga..... 1536" (2)	lf	40	2,535.00	3,765.00
1828x1290" arch, 12 ga..... 1542" (2)	lf	40	2,545.00	3,780.00
1835x1295" arch, 12 ga..... 1548" (2)	lf	40	2,555.00	3,795.00
1842x1300" arch, 12 ga..... 1554" (2)	lf	40	2,565.00	3,810.00
1849x1305" arch, 12 ga..... 1560" (2)	lf	40	2,575.00	3,825.00
1856x1310" arch, 12 ga..... 1566" (2)	lf	40	2,585.00	3,840.00
1863x1315" arch, 12 ga..... 1572" (2)	lf	40	2,595.00	3,855.00
1870x1320" arch, 12 ga..... 1578" (2)	lf	40	2,605.00	3,870.00
1877x1325" arch, 12 ga..... 1584" (2)	lf	40	2,615.00	3,885.00
1884x1330" arch, 12 ga..... 1590" (2)	lf	40	2,625.00	3,900.00
1891x1335" arch, 12 ga..... 1596" (2)	lf	40	2,635.00	3,915.00
1898x1340" arch, 12 ga..... 1602" (2)	lf	40	2,645.00	3,930.00
1905x1345" arch, 12 ga..... 1608" (2)	lf	40	2,655.00	3,945.00
1912x1350" arch, 12 ga..... 1614" (2)	lf	40	2,665.00	3,960.00
1919x1355" arch, 12 ga..... 1620" (2)	lf	40	2,675.00	3,975.00
1926x1360" arch, 12 ga..... 1626" (2)	lf	40	2,685.00	3,990.00
1933x1365" arch, 12 ga..... 1632" (2)	lf	40	2,695.00	4,005.00
1940x1370" arch, 12 ga..... 1638" (2)	lf	40	2,705.00	4,020.00
1947x1375" arch, 12 ga..... 1644" (2)	lf	40	2,715.00	4,035.00
1954x1380" arch, 12 ga..... 1650" (2)	lf	40	2,725.00	4,050.00
1961x1385" arch, 12 ga..... 1656" (2)	lf	40	2,735.00	4,065.00
1968x1390" arch, 12 ga..... 1662" (2)	lf	40	2,745.00	4,080.00
1975x1395" arch, 12 ga..... 1668" (2)	lf	40	2,755.00	4,095.00
1982x1400" arch, 12 ga..... 1674" (2)	lf	40	2,765.00	4,110.00
1989x1405" arch, 12 ga..... 1680" (2)	lf	40	2,775.00	4,125.00
1996x1410" arch, 12 ga..... 1686" (2)	lf	40	2,785.00	4,140.00
2003x1415" arch, 12 ga..... 1692" (2)	lf	40	2,795.00	4,155.00
2010x1420" arch, 12 ga..... 1698" (2)	lf	40	2,805.00	4,170.00
2017x1425" arch, 12 ga..... 1704" (2)	lf	40	2,815.00	4,185.00
2024x1430" arch, 12 ga..... 1710" (2)	lf	40	2,825.00	4,200.00
2031x1435" arch, 12 ga..... 1716" (2)	lf	40	2,835.00	4,215.00
2038x1440" arch, 12 ga..... 1722" (2)	lf	40	2,845.00	4,230.00
2045x1445" arch, 12 ga..... 1728" (2)	lf	40	2,855.00	4,245.00
2052x1450" arch, 12 ga..... 1734" (2)	lf	40	2,865.00	4,260.00
2059x1455" arch, 12 ga..... 1740" (2)	lf	40	2,875.00	4,275.00
2066x1460" arch, 12 ga..... 1746" (2)	lf	40	2,885.00	4,290.00
2073x1465" arch, 12 ga..... 1752" (2)	lf	40	2,895.00	4,305.00
2080x1470" arch, 12 ga..... 1758" (2)	lf	40	2,905.00	4,320.00
2087x1475" arch, 12 ga..... 1764" (2)	lf	40	2,915.00	4,335.00
2094x1480" arch, 12 ga..... 1770" (2)	lf	40	2,925.00	4,350.00
2101x1485" arch, 12 ga..... 1776" (2)	lf	40	2,935.00	4,365.00
2108x1490" arch, 12 ga..... 1782" (2)	lf	40	2,945.00	4,380.00
2115x1495" arch, 12 ga..... 1788" (2)	lf	40	2,955.00	4,395.00
2122x1500" arch, 12 ga..... 1794" (2)	lf	40	2,965.00	4,410.00
2129x1505" arch, 12 ga..... 1800" (2)	lf	40	2,975.00	4,425.00
2136x1510" arch, 12 ga..... 1806" (2)	lf	40	2,985.00	4,440.00
2143x1515" arch, 12 ga..... 1812" (2)	lf	40	2,995.00	4,455.00
2150x1520" arch, 12 ga..... 1818" (2)	lf	40	3,005.00	4,470.00
2157x1525" arch, 12 ga..... 1824" (2)	lf	40	3,015.00	4,485.00
2164x1530" arch, 12 ga..... 1830" (2)	lf	40	3,025.00	4,500.00
2171x1535" arch, 12 ga..... 1836" (2)	lf	40	3,035.00	4,515.00
2

Miami's Big Exhibit Center Moves Closer to Financing

Ebasco reports it is feasible, and Wall Street firms plan $60-million underwriting. Wolfson may be a backer

Financing plans for a permanent "Western Hemisphere fair" near Miami, the long-discussed Inter-American Cultural and Trade Center, moved several steps closer to reality last week.

It was announced that Ebasco Services, Inc., has reported favorably on the revenue possibilities of the project. Next, on the basis of this report, the New York investment houses of Lehman Brothers and Van Alstyne, Noel & Co., plan to underwrite a $60-million revenue bond issue. The bonds may be sold early next year, provided that Florida courts approve the bonds, which would be issued by the Inter-American Center Authority. Construction would start soon after.

• **Ebasco reports**—After studying possible attendance from vacationers and local residents, and after weighing the experience of past World's Fairs, Ebasco estimates an operating profit available for debt service of $20.7 million during the first three years, and $18.2 million in later years. This is based on a minimum annual attendance of 12 million during the first three years, and 10 million annually in later years.

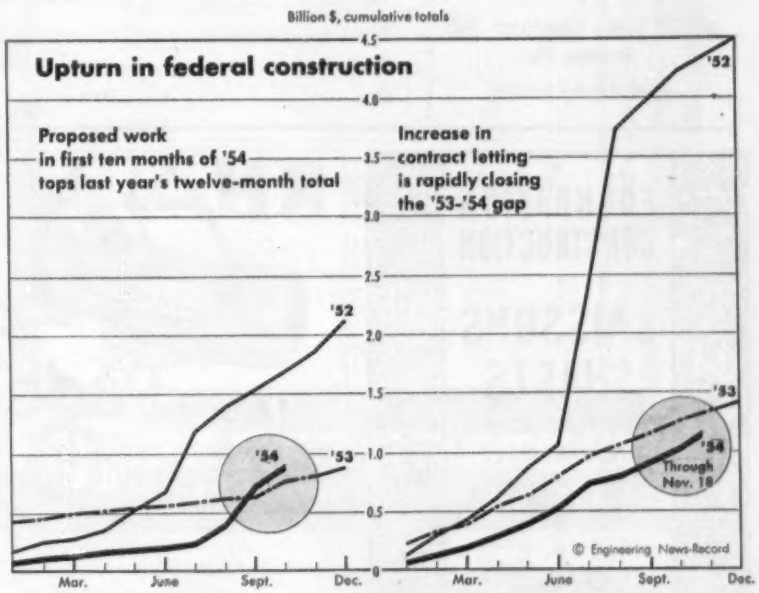
The bond offering, according to Wall Street observers, may follow the pattern of the Mackinac Bridge financing. A Series A issue would get first crack at net revenue. A Series B, offering a substantially higher coupon, would have the next claim on revenue. If the authority had anything left over, it could be used to speed up bond retirement or expand the center.

• **"Venture bonds"**—Although the Series B bonds are technically debt securities, they are being referred to as "venture capital." As in the case of the Mackinac Series B bonds, they would be designed for investors in high-tax brackets, willing to wait several years for income. To a man in the highest (91%) tax bracket, a 5% tax-exempt yield is the same as a taxable yield of almost 56%. It is easy to see that such bonds could conceivably be good investments even if the borrower was never able to pay the full coupon rate.

Louis E. Wolfson, prominent Florida financier who also heads Merritt-Chapman & Scott Corp., said last week he might be interested in putting in some "risk money," both personally and through MC&S. By the same reasoning, other interested parties, such as hotels, real estate operators, and other businessmen interested in developing southern Florida, might be potential direct buyers of the bonds.

• **Permanent fair**—The $60-million issue would finance initial construction of facilities on an 1,800-acre site on Biscayne Bay about 11 mi north of Miami. The center which would be opened early in 1958, would be something like a permanent version of the New York World's Fair. A huge amphitheater would be surrounded by exhibit buildings, showing products of countries and business firms from all over North and South America. The hope is that exhibitors would provide additional financing of about $140 million.

In addition, there would be facilities for large conventions. An amusement section would provide "super-Broadway entertainment spectacles." There would be zoological gardens, and beaches. Visitors would float through the exhibition center along canals, or perhaps ride on automatically controlled aluminum-and-glass trains.



Federal Contracts Make a Comeback

Federal construction contract awards have turned up sharply during the fourth quarter. In the first seven weeks they averaged $34 million per week, that's double the volume during the first three months of this year and 25% higher than average weekly volume during the second and third quarters.

This upswing has narrowed the gap between 1953 and 1954 volume to only 11% at the end of the first 46 weeks (chart, right-hand panel). But the chart also shows that 1953 itself was well behind 1952 in volume of federal awards. Of the $4.5-billion volume in 1952, $2.3 billion was for atomic plants.

Proposed federal work has been climbing lately (left-hand panel). For the year so far, volume totals $912 million, more than was proposed all last year. The backlog of federal work is now $12.5 billion, which is $400 million above the low set last July, and $1 billion under the record reached in January 1953.

(B&F continued on page 48)

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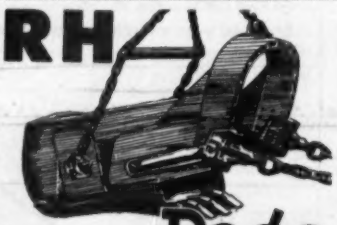

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BUSINESS AND FINANCE

138 Chemical Contracts Are In Sight, MCA Survey Shows

The chemical industry has $1,514 million of privately financed plants under construction or definitely planned. Of these, 138 projects with an estimated value of $538 million have not yet started building.

That's the result of a survey, the first of its kind, by the Manufacturing Chemists Assn., Washington, D. C. MCA says that during the year ended Nov. 1, plants worth $1,216 million were completed. It also notes that many other privately financed projects are being considered or are in the planning stage. Some of these will be started in 1955.

In addition, about $3,360 million of government-financed construction now is under way or planned. This total includes some projects which started three years ago.

The MCA survey shows that during the past year Texas led the way in chemical construction (ENR Sept. 16, p. 94), with Florida and Louisiana coming next. Biggest single investment currently is being made in polymeric materials (mostly plastics) and agricultural chemicals (mostly fertilizers).

Justice Dept. Wins Parts of Case Against Manufacturers

The eight-year anti-trust suit brought by the Justice Dept. against several makers of chlorinating equipment finally ended this week in the Providence (R. I.) Federal District court. Parts of the case were settled last July (ENR Aug. 5, p. 75).

Judge Edward Day accepted pleas of nolo contendere in criminal anti-trust charges against William J. Orchard and Gerald Peet of Wallace & Tiernan. He fined each $5,000. He dismissed criminal charges against Schutte & Koerting.

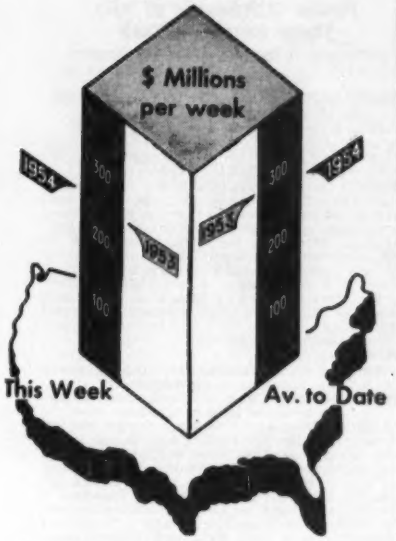
In a third case, involving civil charges against Builders Iron Foundry and its president, Henry S. Chaffee, Judge Day entered a consent judgment requiring the defendents to discontinue "agreements not to compete and providing for division of fields." This same kind of judgment was entered against Wallace & Tiernan last July.

Plywood Orders Boom

Northwest mills report an unseasonably high demand for plywood. The industry backlog is now double what it was last March, before the pickup in housing starts.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 47 wks 1954	1953	% chge
Federal	$13.7	$1,171.6	$1,332.7	−12
State and municipal	75.9	4,500.7	4,538.4	−1
Total public	89.6	5,672.3	5,871.1	−3
Total private	164.5	7,366.2	7,643.7	−4
U. S. total	$254.1	$13,038.5	$13,514.8	−4

Contracts by type of work

Waterworks	$2.5	$219.8	$211.6	+4
Sewerage	6.3	357.8	399.3	−10
Bridges	6.7	459.3	626.7	−27
Highways	24.7	1,729.5	1,626.4	+6
Earthwork, waterways	4.0	287.9	332.9	−14
Buildings:				
Public, excl. hsg.	29.9	1,593.2	1,559.0	+2
Housg., public	7.4	240.9	361.9	−33
Housg., private	59.1	3,868.7	3,184.6	+21
Commercial	27.1	1,271.8	1,062.4	+20
Industrial	75.8	1,701.8	2,567.4	−34
Unclassified	10.6	1,307.8	1,582.6	−17
Total	$254.1	$13,038.5	$13,514.8	−4

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)

	Week of Nov. 25 1954	Cumulative 46 Wks 1954	1953	% chge '53-'54
Corporate securities	$13.5	$2,487.5		−34
State and municipal:				
All except housing	176.0	4,915.6		+30
Housing	...	91.0		−65
Federal loans	1.7	106.6		+3
Federal aid	...	673.0		−13
Total non-federal	$191.2	$8,273.7		−5
Federal appropriations:				
In U. S.	...	$2,073.3		+33
Outside U. S.	...	33.2		+15
Total new capital	$191.2	$10,380.2		+ 0.6

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	11/18	643.08	309.13	134.81
	10/28†	643.02	309.10	134.80
Building cost	11/18	456.40	246.72	129.74
	10/28†	456.34	246.68	129.72
Volume	Oct.	423	172	122
	Sept.	503	204	145

† Official ENR index for Nov.

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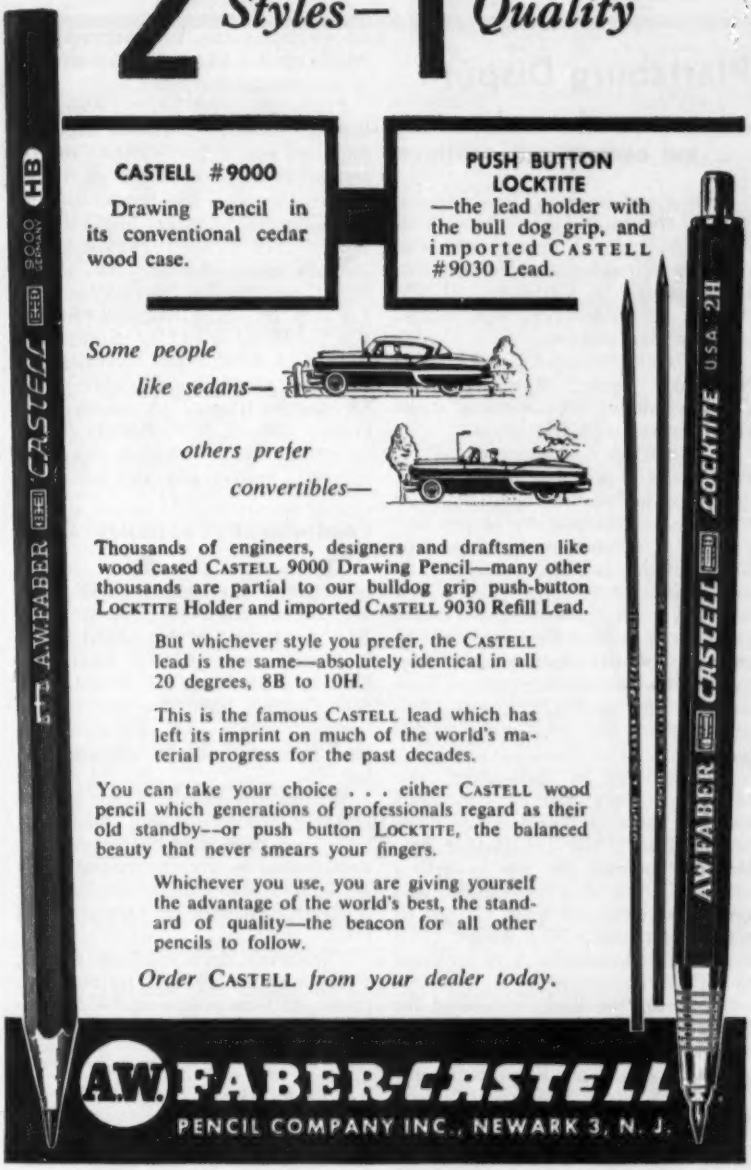

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LABOR

Plattsburg Dispute

Court orders arbitration, but contest may continue

First round in the "Plattsburg dispute" between Northern New York Building Trades Employers Association and Adirondack and Vicinity District Council of Carpenters (ENR, Nov. 4, p. 90) has been won by the employers association.

Last week, Supreme Court Justice McCluskey handed down a limited decision ordering the carpenters' council to proceed with arbitration.

Although this is a victory for BTEA, its effect is to postpone until another day a decision on the underlying issue that involves the sanctity of area-bargaining agreements in general. For the court decided but one issue. It saw a contract the validity of which had not been questioned by either party. So it applied the simple rule of contract law that requires contracting parties to adhere to the terms of their contract—and in this case one provision requires the arbitration of disputes.

In dismissing as "premature" the carpenters' claim that an arbitration award in favor of BTEA would compel violation of the Taft-Hartley Act, the court pointed the way to further litigation. And it reminded the litigants that either of them can go to court again under New York's Civil Practice Act to enforce or to set aside the arbitration award.

Arbitrators previously appointed are Donald F. Davies (the association's secretary), Milton Frey (carpenters' council secretary) and Ralph E. Kharas (dean of Syracuse University College of Law).

The dispute arose when a member of the carpenters' council (which already had a contract with BTEA) negotiated separate contracts with two non-resident contractors working on the Plattsburg airbase.

Jurisdictional Peace Board Has Changes in Membership

Both industry and labor have new members on the National Joint Board for the Settlement of Jurisdictional Disputes in the Construction Industry (ENR, Sept. 16, p. 28).

Stepping in as a regular member for industry is Fred R. Stevens, personnel manager of Stone & Webster, Boston, Mass. He takes the place of AGC's J. D. Marshall who remains as secretary to the board.

Pinch-hitting for labor is John McCartin, general organizer of the AFL plumbers union. He is sitting in as a regular member in place of P. T. Schoemann who has temporarily returned to the plumbers union during the illness of President Durkin.

With these changes, the board's regular membership lines up like this: For industry—R. J. Mitchell (AGC), F. T. Windsor (Tile Contractors Assn.), O. F. Erickson (National Association of Master Plumbers) and Stevens; for labor—T. A. Murray (carpenters union), S. F. Raftery (painters union), H. P. Wharton (operating engineers union), and McCartin.

Employment Continues Down

The downward trend in contract construction employment (ENR, Nov. 18, p. 160) continues. According to BLS estimates, October's total fell to 2,764,000—down 43,000 from September, and down 4.3% from the all-time October high of a year ago. It compares with a 2.1% decline in September from the September total of last year.

Within this overall picture, general building contractors are employing 7.5% less than they did a year ago; employment by trade contractors is up 1.4%; and non-building employment is about even with its October 1953 total.

The current decline reflects, in part, a return to the 1951-52 seasonal pattern—a pattern broken in 1953 when construction employment was still climbing in October.

Labor Briefs . . .

• **Nike dispute**—Picketing of construction work at Nike base projects near Seattle (ENR, Nov. 18, p. 158) has resulted in an unfair labor practice charge. In the charge filed with NLRB, Cisco Construction Co. names both the carpenters and the laborers unions.

• **Strike at Paducah**—A short-lived walkout of 3,000 construction workers, protesting use of nonunion labor, at AEC's plant near Paducah, Ky., ended when Cumberland Construction Co. agreed to sign a union contract.

• **Pay boost**—New contract for glaziers in Phoenix, Ariz., carries a 5¢ increase. This brings the rate to $2.45—it goes to $2.47½ on June 1.

OFFICIAL PROPOSALS

Bids: December 21, 1954

Power Authority of the State of New York

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ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERING
OF CONCRETE AGGREGATES
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11013
ST. LAWRENCE CONTRACT NO. P4

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the production, furnishing, and delivery of concrete aggregates to Massena, New York until 10:30 A.M. Eastern Standard Time on the 21st day of December 1954 at the Authority's Office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items are:
Estimates:

800,000 tons Natural or Manufactured Sand Fine Aggregate
1,700,000 tons Crushed Rock Coarse Aggregate in four grades

Specifications and Proposal Forms are on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York after November 15, 1954, upon application and prepayment of a fee of Five ($5.00) dollars per set of two bound copies of contract documents, no part of which will be refunded.

Bids must be made in duplicate upon the proposal forms included in and bound with contract documents. Guarantee will be required with each bid in an amount not less than 10 percent of the maximum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: December 8, 1954

Contract 772

For THE WESTCHESTER COUNTY, NEW YORK
SANITARY SEWER DISTRICT OF NEW ROCHELLE
WEST INTERCEPTOR SEWER
SEWAGE TREATMENT PLANT TO HUDSON PARK

Sealed bids will be received in Room 508, County Office Building, White Plains, New York until 11:00 A.M., December 8, 1954 (Eastern Standard Time) immediately after which the bids will be publicly opened and read in Room 808 of said building.

The work under Contract 772 includes the construction of; approximately 1350 feet of Intercepting Sewer partially supported on pile foundations and consisting of an inverted siphon of two concrete pipes of 24" and 30" diameters under Echo Bay Harbor and Hudson Park; a Diversion Chamber with superstructure in Hudson Park; a valve Chamber in Hudson Park; approximately 150 ft. of 30" diameter reinforced concrete pipe sewer from Hudson Park Road to the Diversion Chamber; and the raising and connection to approximately 28 ft. of 24" and 30" mechanical joint cast iron pipe west of the existing Siphon Dewatering Chamber at the Treatment Plant site.

All contract documents may be seen in Room 508, County Office Building. Bidders may procure plans and specifications for the Contract upon a cash deposit of $20.00, which deposit will be refunded, to bidders only, provided that all plans and copies of specifications are returned in good condition within thirty days after award of the Contract or rejection of bids.

All bids must be accompanied by a certified check, payable to the County of Westchester, New York, , in the amount of $20,000.00.

The County reserves the right to waive any informalities in the bids or to reject any and all bids. No bidder may withdraw his bid within forty-five days after the actual opening thereof.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF WESTCHESTER
BY: JAMES C. HARDING
COMMISSIONER

OFFICIAL PROPOSALS

Bids: December 17, 1954

Power Authority of The State of New York For Construction of Construction Power Facilities Near Massena, St. Lawrence County, New York

SPECIFICATION NO. PA-5-14036
ST. LAWRENCE CONTRACT NO. 7

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of construction power facilities near Massena, St. Lawrence County, New York until 10:30 a.m. Eastern Standard Time on the 17th day of December, 1954 at the Authority's office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are:

1. A 115 KV transmission line, 3-phase, single circuit, approximately 3 miles long on H-frame wood poles. The conductors will be No. 3/0 A.C.S.R. The line will also be provided with a static line which will be installed on top of one of the poles of the H-frame and strung the whole length of the line.
2. Approximately 3.7 miles of double circuit, 3-phase 13.8 KV transmission line on H-frame wood poles. The six conductors for this line will be 336,400 circular mil A.C.S.R.
3. A 115-13.8 KV substation consisting of erection of two 10,000 kva, 3-phase, oil-filled transformers, and necessary bus work, disconnecting switches and fuses for six 13.8 KV, 3-phase circuits. The structure to be furnished by the Contractor for this installation may be either wood or steel.
4. Two 13.8 KV load centers consisting of 3-3-pole, gang-operated pole top mounted load break switches and bus work arranged to receive two incoming 13.8 KV, 3-phase circuits. The structure will be wood.

Plans, specifications and Proposal Forms for the work are on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, after November 26, 1954 upon application and prepayment of a fee of Twenty-five ($25.00) dollars, no part of which will be refunded.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the Power Authority of the State of New York for the Sum of $15,000.00.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: December 14, 1954

The Port of New York Authority Contract NYA-430.002

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
HANGAR NO. 9
PAVING, UTILITIES AND PILES

Sealed proposals for the construction of paving and the furnishing and installation of utilities and piles for Hangar No. 9 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 14, 1954, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Construction of Intercepting and Trunk Sewers and Pumping Stations

CITY OF TAMPA, FLORIDA

Sealed proposals for construction of Intercepting and Trunk Sewers and Force Mains, and for construction of Pumping Stations, will be received in the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida until 10 A.M., E.S.T., December 6, 1954.

Plans and contract documents may be examined and obtained at the office of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each of the two sets of contract documents.

CITY OF TAMPA, FLORIDA
By Curtis Hixon, Mayor

Dated: November 10, 1954

Bids: December 2, 1954

Contract U.S.-87

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Barge Canal Improvement Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 2, 1954 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

CONTRACT U.S.-87 FOR LOWERING THE SILLS, EXTENDING THE GATES AND PERFORMING OTHER MISCELLANEOUS WORK AT UPPER END OF LOCKS 2, 3, 4, 5 AND 6 AND MINOR REPAIRS AT LOWER END OF LOCKS, ERIE CANAL, SARATOGA COUNTY, NEW YORK

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. N. F. Ronan, District Engineer, 353 Broadway, Albany 1, New York.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $15.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is confidential and will be made known at time of letting.

Bids, with their guaranties, must be securely sealed in envelopes, addressed and marked on the outside as required by the invitations. A guarantee will be required with each bid in a sum approximately equal to but not less than 5% of the total amount of the bid. The bidder shall furnish a certified check on some solvent banking institution in the State of New York, a draft issued by a National or State Bank or Trust Company in good credit within the State on some solvent banking institution in the City of Albany or the City of New York and payable on sight to the State of New York or deposit United States bonds (at par value) as security in the amount required. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Barge Canal Improvement Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

Bids: December 15, 1954

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
Contract C-13
Contract C-14
Contract C-13 and C-14

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, December 15, 1954, for the performance of each of the contracts enumerated above.

CONTRACT NO. C-13

The grading, drainage, structures and paving of approximately 2.6 miles in Construction Section C-13 of the Indiana East-West Toll Road beginning at a point about 108 feet east of Burns Ditch at Toll Road Centerline Station 1321+26 in Lake County and extending eastwardly to a point about 787 feet east of Willow Creek Road at Toll Road Centerline Station 1460+00 in Porter County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation ..	86,000 Cu. Yds.
Borrow	1,138,000 Cu. Yds.
10" Reinforced Concrete Pavement	77,000 Sq. Yds.
Culvert Pipes and Underdrains	6,000 Lin. Ft.
Cast-in-Place Concrete Piling	19,000 Lin. Ft.
Concrete for Structures.	5,000 Cu. Yds.
Reinforcing Steel	482,500 Pounds
Fabricated Structural Steel	118,500 Pounds

CONTRACT NO. C-14

The grading, drainage, structures and paving of approximately 2.6 miles in Construction Section C-14 of the Indiana East-West Toll Road beginning at a point about 787 feet east of Willow Creek Road at Toll Road Centerline Station 1460+00 in Porter County and extending eastwardly to a point about 2,762 feet west of State Highway 149, at Toll Road Centerline Station 1597+00 in Porter County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation ....161,000 Cu. Yds.	
Borrow	682,000 Cu. Yds.
10" Reinforced Concrete Pavement	70,500 Sq. Yds.
Culvert Pipes and Underdrains	10,500 Lin. Ft.
Cast-in-Place Concrete Piling	18,000 Lin. Ft.
Concrete for Structures..	3,700 Cu. Yds.
Reinforcing Steel	569,000 Pounds
Fabricated Structural Steel	187,000 Pounds

The work covered by Contract C-13 and C-14, which covers a combination of Construction Sections C-13 and C-14, is the construction as above described for the individual Construction Sections, taken together.

Copies of the Plans, Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road.....	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross-Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid per Construction Section covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Section, the Construction Section thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, December 15, 1954, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Charles W. Keating, Secretary-Treasurer — Dr. Dillon Geiger, Chairman

OFFICIAL PROPOSALS

Bids: December 20, 1954

Construction of 36-Inch Diameter Water Supply Main Arlington County, Virginia

Sealed proposals for furnishing all materials and equipment and doing all work required for the construction of a 36-inch diameter water supply main, as described below, will be received by the Purchasing Agent in Room 213, in the Court House Building at Arlington County, Virginia, until 11:00 A.M., E.S.T. on December 20, 1954, and there publicly opened and read immediately thereafter:

CONTRACT 2C

CONSTRUCTION OF 36-INCH DIAMETER WATER SUPPLY MAIN AND APPURTENANCES:

1. Location: The work is located in Arlington County, Va. on public streets and on County owned right-of-ways from Lee Highway to Fairfax Drive.
2. Type of Work: The principal items of work include the following: Approximately 5,200 lin. ft. of 36-inch steel or reinforced concrete water pipe together with manholes, 24-inch diameter, cone valves, miscellaneous gate valves, blow-off, air release or inlet valves, connections to existing water mains, etc.
3. Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the office of the Chief Engineer of the Water Division, County Court House, Arlington, Va.; at Dodge Reports, 900 F. Street, N.W., Washington, D. C., and at the Office of Alexander Potter Associates, Consulting Engineers, 50 Church Street, New York 7, N. Y.
4. Copies of Plans, Specifications and Bidding Documents may be obtained from the Purchasing Agent in Room 213, Court House Building at Arlington, Virginia, upon Deposit of Thirty ($30.00) Dollars Per Set.

Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be Fifty (50%) Percent of the Deposit. No refund will be made for return of documents in poor condition or later than the two-week period stipulated.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Percent (5%) of the amount of the bid, made payable to the Treasurer of Arlington County, as bid security.

The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

No bidder may withdraw his bid within Thirty (30) days after actual date of opening thereof.

The County Board of Arlington County, Virginia, reserves the right to reject any or all bids and to waive any informality in the bids.

ARLINGTON COUNTY, VIRGINIA
By: A. T. LUNDBERG
County Manager

Bids: December 16, 1954

Sewage Treatment Buidings Philadelphia, Penna. Procurement Department Water Department

Sealed proposals will be received in Room 313, City Hall Annex, until 2:30 P.M., Eastern Standard Time, Thursday, December 16, 1954, and opened at that time, for BID NO. 2289—CONTRACT NO. SD-129-SE.

GENERAL CONSTRUCTION WORK AND FURNISHING AND INSTALLING MECHANICAL EQUIPMENT AND PIPING FOR SCREEN, ADMINISTRATION, GARAGE AND MACHINE SHOP BUILDING, GRIT CHAMBERS AND APPURTENANT WORK AT SOUTHEAST TREATMENT WORKS PACKER AVENUE AND SWANSON STREET

PRINCIPAL ITEMS OF WORK

The work consists of general construction work, furnishing and installing mechanical equipment and piping for the screen, administration, garage and machine shop building, grit chambers, pipe gallery and inlet channels. The building comprises the following structures:

Garage and machine shop—approx. 46' x 63'.
Office and administration room—approx. 46' x 63'.
Screen room—approx. 84' x 37'.

The building is one story with basements with the exception of the screen room where channels pass beneath the floor. The sub-structure is reinforced concrete, superstructure steel framing with brick walls. Six (6) grit chambers each approx. 78' long, 10' wide; and also a combined pipe gallery and inlet channels, all of reinforced concrete. The building and structures are on pile foundations, approx. 11,000' of cast-in-place concrete piles. The mechanical equipment consists of bar screens, screw conveyors, grit collectors, ejectors, air compressors and receivers. Also included in the work is approx. 62,000 cubic yards of grading (fill).

Proposal forms, specifications, questionnaires and blueprints may be obtained from the Water Department, in Room 1131 City Hall Annex, Juniper Street and Filbert Street, Philadelphia 7, Penna. A deposit of twenty-five (25) dollars in cash or certified check is required for each set of blueprints and specifications. This deposit will be refunded upon return of the blueprints, unmarked and in undamaged condition, within ten (10) days after bids are received.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1106 City Hall Annex, Philadelphia, Pennsylvania, at least one (1) week prior to the date of opening bids. Each proposal must be accompanied by security in form and amount as set forth in the proposal.

Michael Sura, Acting Commissioner

Bids: December 21, 1954

New Jersey Turnpike Authority

CONTRACT NO. N-23

Proposals are invited for Contract No. N-23 which involves the construction of the piers for the West viaduct, extending from Grand Street to Second Street; the construction of the piers and abutments for, and the concrete deck for a portion of, the Ramps A and B viaducts adjoining the West Viaduct; the construction of six piers for the North Terminal Ramps at the Erie Railroad Yards in the vicinity of Tenth Street; the construction of new streets; removal of existing, and construction of new pavements in existing streets; resurfacing of existing street pavements; and other incidental work, all in Jersey City, Hudson County, New Jersey, and all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Open Foundation Excavations	11,500 Cu. Yds.
Concrete	13,700 Cu. Yds.
Reinforcement Steel	1,800,000 Lbs.
Untreated Timber Piles	10,500 Lin. Ft.
Treated Timber Piles	6,500 Lin. Ft.
Steel Piles	25,000 Lin. Ft.
Cast-in-Place Concrete Piles	131,000 Lin. Ft.
New Pavement	14,800 Sq. Yds.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock Eastern Standard Time on the morning of December 21, 1954, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after November 22, 1954, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

November 19, 1954

U. S. Government

Department of Commerce, Bureau of Public Roads, November 18, 1954. SEALED BIDS will be received at the office of the Bureau of Public Roads, Room 6006, General Services Building, Washington 25, D. C., until 11:00 A.M., E.S.T. December 23, 1954, for construction of Project R-3, Rama Road in the Republic of Nicaragua, 19.577 Kilometers (12.138 miles) Grading, Draining, Borrow Base Course, Bridges and other work from Villa Somoza easterly, Republic of Nicaragua. The approximate quantities of the more important items are as follows: 580,000 cubic meters Excavation; 41,500 cubic meters Selected Borrow Base Course; 1700 cubic yards Class A Concrete; 200 tons Reinforcing and Structural Steel; 4570 lin. ft. metal culverts; Special conditions of work as performed by U. S. Government in foreign areas apply as well as local laws. Plans, Specifications and Proposal Forms are available upon request at the address given above or Bureau of Public Roads, 516 Roosevelt Avenue, Managua, Nicaragua. F. V. du Pont, Commissioner

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DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4292) will be received at Tiber Government Camp (Chester) Montana, until January 13, 1955, for furnishing labor and materials for earthwork, structures, and surfacing of Relocation of County Roads Tiber Reservoir area, Lower Marias Unit, Missouri River Basin Project. Location: about 15 miles southeast of Shelby, Montana, in Liberty, Pondera, and Toole Counties. Principal items are 454,200 cu. yds. excavation, all classes, for roadway; 6,000 M gallons watering; 3,762 lin. ft. furnishing and laying 15, 18, 24, 36 and 48-inch diameter culvert pipe (corrugated metal or reinforced concrete); 51,200 cu. yds. gravel or crushed rock surfacing; 900 roller hours rolling surfacing; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Chester, Montana; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4294) will be received at Phoenix, Arizona, until December 22, 1954, for furnishing labor and materials for: modifications, Davis Dam Power Plant and Utility Building, Parker-Davis Project. Location: at Davis Dam. Principal items are: Lump Sum, constructing concrete masonry unit walls; Lump Sum, furnishing and installing stairway and hatch; Lump Sum, cover for elevator machinery room; Lump Sum, furnishing metal and glazed metal partitions in power plant and utility building; Lump Sum, furnishing and installing air-conditioning and ventilating systems; Lump Sum, modifications of electrical systems in the power plant, utility building, transformer structure, and intake structure elevator tower; and other work. Completion time 105 days. For particulars, address Bureau of Reclamation, Phoenix, Arizona; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4295) will be received at Rupert, Idaho, until December 28, 1954, for furnishing labor and materials for Rupert shop and warehouse, North Side Pumping Division, Minidoka Project, Idaho. Location, Rupert, Idaho. Principal items are: 365 cu. yds.—excavation; 195 cu. yds.—reinforced concrete; Lump Sum, constructing a one story shop and warehouse, approximately 36 feet by 145 feet. Lump Sum, furnishing and installing automotive lift. Lump Sum, furnishing and installing overhead traveling crane; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Rupert, Idaho; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Sealed bids for furnishing labor, equipment, materials and performing all work required for site preparation, construction of substation, installation of all equipment and accessories, other related work, will be received in the office of the Engineering and Construction Director, Balboa Heights, Canal Zone, until 10:05 A.M. January 3, 1955, and at that time publicly opened. Plans and specifications are available at the office of Procurement Officer, Panama Canal Company, 21 West Street, New York 6, N. Y. Deposit of $40.00 required.

OFFICIAL PROPOSALS

Bids: December 7, 1954

Power Authority of the State of New York

FOR
THE FABRICATION AND ERECTION OF THE SUPERSTRUCTURE
FOR
THE BARNHART ISLAND BRIDGE OVER THE ST. LAWRENCE RIVER NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. 5422-C
ST. LAWRENCE CONTRACT NO. 6

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the fabrication and erection of the superstructure for the Barnhart Island Bridge over the St. Lawrence River, near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Standard Time, on the 7th day of December 1954, at 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineers, Prager-Kavanagh, 126 East 38th Street, New York, New York; The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, on or after November 15, 1954, upon application and pre-payment of a fee of Forty Dollars ($40.00) per set, no part of which will be refunded. Extra sets of plans at $20.00 each or specifications at $20.00 each may be obtained by any contractor who purchases a full set.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the Power Authority of the State of New York for the sum of One Hundred Fifty Thousand Dollars ($150,000.00).

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: December 2, 1954

Contract B.P. 54-53

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Building Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 2, 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

CONTRACT B.P. 54-53 BEACH PROTECTION (EMBANKMENT IN PLACE) AT SOUTH BEACH, STATEN ISLAND, CITY OF NEW YORK, RICHMOND COUNTY, NEW YORK

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit. The Engineer's estimate of cost for this work is $760,000.00. Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Every proposal must be accompanied by a deposit equal to five percentum (5%) of the amount of the proposal in the form of a certified check on some solvent banking institution in the State of New York or a draft issued by a national or State bank or trust company in good credit within the State on a solvent bank institution in the City of Albany or the City of New York and payable on sight to the State of New York, Commissioner of Taxation and Finance. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Building Law, as set forth in "Instruction to Bidders." The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: December 2, 1954

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N.Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 2, 1954 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N.Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE TACONIC STATE PARKWAY, SECTION 9C AND 9B, FROM RT. 23 to RT. 203, COLUMBIA COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-74

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York
(b) Mr. J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $27,500.00

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,375.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

Bids: November 30, 1954

Unit Two: Lift Stations, Interceptors & Force Mains Charleston, W. Va.

CHARLESTON SEWER IMPROVEMENTS.
PROJECT WVA 46-P-4

The Sanitary Board of the City of Charleston, Charleston, West Virginia will receive sealed bids for "Unit Two: Lift Stations, interceptors and Force Mains." until 2 P.M. Eastern Standard Time on the 30th day of November, 1954, at the office of the Sanitary Board, Room 15, City Building, at which time and place all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100 per cent of contract. Liquidated damages for delay will be One Hundred Dollars ($100.00) per day for each calender day beyond the date specified in the contract.

The contract documents, including plans and specifications are on file at the office of the Sanitary Board, City Building, Charleston, West Virginia, and at the office of Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, where they may be examined free of charge.

Experienced Bidders may obtain copies of plans and specifications by depositing Fifty Dollars ($50.00) with Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, for each set of documents so obtained. The amount of the deposit for one (1) set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within five (5) days after the opening of bids.

Material people should contact the office of Settle Engineers, Inc., for information.

The Sanitary Board of The City of Charleston reserves the right to reject any or all bids and to waive any informalities in bidding.

A certified check or cashier's check, payable to The Sanitary Board of The City of Charleston, West Virginia, or a satisfactory bid bond executed by the bidder and a surety company authorized to do business in West Virginia, in an amount of dollars at least equal to five per cent (5%) of the bid or an equal amount of U S. Government Bonds, shall be submitted with each bid.

No bid may be withdrawn, after the scheduled closing time for receipt of bids, for at least sixty (60) days.

THE SANITARY BOARD OF THE CITY OF CHARLESTON
By: Donald C. Shonk
Secretary

Date: October 27, 1954.

FOUR UNIT PROJECTS

Units 1, 2 and 3 LIFT STATIONS AND ACCESSORIES.

Unit 4: Force Mains

4,550 lineal feet of 42 inch Cast Iron Mechanical Joint
130 lineal feet of 24 inch Cast Iron Mechanical Joint
1,200 lineal feet of 14 inch Cast Iron Mechanical Joint
100 lineal feet of 30 inch Cast Iron Molox
80 lineal feet of 14 inch Cast Iron Molox

OFFICIAL PROPOSALS

Bids: December 6, 1954

State of Connecticut Highway Department

NOTICE TO ALL CONTRACTORS:

Sealed bids for the construction of the following projects will be received by the State Highway Commissioner in Room 527 at the State Office Building in Hartford, Connecticut until 2:00 P.M., E.S.T., Monday, December 6, 1954, then at said office or at such place at that time designated, publicly opened and read.

Greenwich-Killingly Expressway
Project 322-01

Towns of Westbrook & Old Saybrook: About 25,745 linear feet of 9" reinforced concrete pavement on two 24' roadways on section 22 of the Greenwich-Killingly Expressway, including two composite two-span rolled beam bridges overpassing the Expressway at Routes 153 and 166, five rolled beam bridges underpassing the Expressway at Monahan Road, Elm Street, Valley Branch Railroad tracks, Route #9 and Spring Brook Road, and two reinforced concrete box culverts. Engineer—F. P. Hogan, District #2, Norwich.

Project 306-01

Town of Norwalk: Four single span rolled beam bridges at Five Mile River, Richards Avenue, Keeler Avenue and West Avenue on the Greenwich-Killingly Expressway and about 1,454 linear feet of grading. Engineer—M. B. Pearce, District #3, New Haven.

The minimum rates of wages to be paid labor of the various classifications shall be in accordance with the current schedule of wages established by the State Labor Commissioner, as provided in Section 2206 of the General Statutes of the State of Connecticut, Revision of 1949 as amended by Public Act No. 9 of the Special Session of March 1950 entitled: "Rates of Wages for Work on State Highways" but, in no case less than the minimum shown for the different grades of labor on the above projects.

Plans and specifications for the above projects may be examined in Room 527, State Office Building, Hartford and in the four district offices at Hartford, Norwich, New Haven and New Milford. All proposals must be obtained in Hartford.

NOTE: Contractors wishing to receive plans for their own use must obtain them in Room 527, State Office Building, Hartford, upon payment by check made payable to the Treasurer, State of Connecticut, as follows:

	Cost	Conn. Sales Tax	Total
Westbrook, Old Saybrook	$3.28	2.50	$5.78
Westbrook (Bridge plans only)	9.36	.28	9.64
Norwalk	14.64	.44	15.08
Norwalk (Bridge plans only)	4.32	.13	4.45

All bidders are required to inform themselves fully of the conditions relating to the construction and labor under which the work will be or is now being performed, and the contractor must employ, as far as possible, such methods and means in the carrying out of this work as will not cause interruption or interference with any other contractor.

NOTE: Surety Company bond on form furnished by the Highway Department for at least one-third of the amount of the bid must accompany each proposal, unless the contractor shall have filed with the office an annual proposal bond, certified checks will not be accepted. The State Highway Commissioner reserves the right to reject any and all bids.

G. Albert Hill
State Highway Commissioner

November 15, 1954

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.00 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.00 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

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The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for December 9th issue closing November 29th

TOWN ENGINEER WANTED

TOWN OF ROTTERDAM, N. Y.

Must Be: Graduate Civil Engineer.

N. Y. State Licensed Professional Engineer.

Resident of N. Y. State for one year and preferably a resident of Schenectady County for 6 months.

Experienced in municipal, county or state engineering work, preferably 5 years or more.

UTILITIES ENGINEER

Foreign Service

B.S. degree in mechanical or chemical engineering plus minimum five years' experience in operational and maintenance phases of steam electric power plant.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 84

ARABIAN AMERICAN OIL CO.
505 Park Avenue New York 22, N. Y.

WANTED
CRUSHER SALES ENGINEER

Well-known, midwest manufacturer of complete line of crushers and other machinery for Quarries, Gravel Plants and Contractor Aggregate Producers has excellent opportunity for experienced sales engineer to work with several good distributors and their salesmen in Southeastern States.

Headquarters would be in or near Atlanta, Georgia and territory consists of the states south of and including Tennessee and North Carolina and east of the Mississippi River. This is a permanent, well-paying position with the opportunity to become Southeast District Manager and to increase earnings after showing ability to produce results.

Give complete outline of education and experience and submit recent snapshot or photograph, if available. All replies held absolutely confidential.

P-4337, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ENGINEER

Engineering Department of expanding Northern New York Construction Corporation wants Engineer proficient in Structural and Building Design, Field Supervision, Layout and Cost Control. Prefer with 4-5 years Construction Experience. Mechanical-Civil Background desirable. Should be Registered Professional Engineer or Eligible for Registration. Give full particulars in reply to

P-4615, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

NEW BUSINESS ENGINEER

Established engineering-construction management firm has opportunity for Engineer who has successful background in selling services for design of industrial chemical plants, public works, architectural. Write fully giving details of past similar selling.

P-4618, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BRIDGE ENGINEERS
AND SPECIFICATION WRITERS

Civil Graduate of accredited U. S. college. Must have not less than the following experience:

Detailers—6 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
59 Liberty Street New York 5, N. Y.

ENGINEER
WANTED

Engineer with building construction experience wanted as Assistant Purchasing Agent and Expediter. Good opportunity for advancement with expanding Northern New York construction corporation. Give full resume, strictly confidential.

P-4602, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

BRIDGE—HIGHWAY Engineers—Designers—Draftsmen. For work on bridges, expressways and turnpikes. Location Midwest. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include education, experience, reference and salary expected in application letter. P-4280, Engineering News-Record.

ESTIMATOR—EXPERIENCED to take off and price structural steel and miscellaneous iron work for buildings and bridges, by progressive firm in Eastern Virginia doing 8 to 10,000 tons yearly. Pleasant working conditions in modern air conditioned office. P-4519, Engineering News-Record.

WANTED: ASSISTANT to Director of young and progressive Southern Port. Engineering degree and administrative training essential. Please give complete history, education, experience, age, family data, salary expected and availability by addressing Box P-4493, Engineering News-Record .

CIVIL ENGINEER. Graduate. Immediate opening in office with Consulting Engineering firm of over 30 years. Location, Dallas, Texas. State experience, salary desired and when available. P-4481, Engineering News-Record.

ENGINEER EXPERIENCED in the design of sewers, water systems, water treatment and sewage treatment plants, industrial and municipal structures. Must be experienced in design and general supervision and have executive ability. Permanent position. State age, education, experience, references, salary requirements and when can report. P-4571, Engineering News-Record.

ENTERPRISING CONSTRUCTION company in Northern New York wishes to engage a graduate engineer, preferably one with some building construction experience, who has an interest in becoming an Estimator. This is a permanent position. P-4570, Engineering News-Record.

CHIEF ENGINEER—Sales—Nationally known construction firm (heavy and railroad) specializing in concrete construction desires sales manager to plan advertising and promotional literature, direct sales efforts of representatives, contact designing engineers, address meetings, and present technical papers. Base salary plus incentive compensation. P-4572, Engineering News-Record.

BUILDING ESTIMATOR—for General Contractor—Northeastern Ohio. Good opportunity. Reply fully, stating education, experience, personal data and minimum salary requirement. P-4573, Engineering News-Record.

(Continued on opposite page)

POSITIONS VACANT
(Continued from opposite page)

SALES ENGINEER to organize Branch Office in Texas. Must have sales ability and concrete mix design and construction experience. Interesting, long term position. Sika Chemical Corporation, Passaic, New Jersey.

SALES ENGINEER to singlehandedly evaluate potential and develop sales for concrete spraying machine and other new equipment and methods used in heavy construction work. Considerable travel. P-4601, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: public schools New York City area, capable organizer hiring help to do all concrete and masonry. Salary and bonus. Send complete resume. P-4670, Engineering News-Record.

CHIEF ESTIMATOR—Large general contracting and water front construction firm, Southern California. This firm has been operating for 25 years in this locality. Applicant to be under 50 years of age, experienced in estimating all types of heavy engineering construction. If interested, advise age, education, experience and salary desired. Replies confidential P-4665, Engineering News-Record.

TRAFFIC ENGINEER position available immediately. Administer traffic program progressive Ohio City. Salary $4560-5760. Starting salary contingent on education, experience. Personnel, Municipal Building, Hamilton, Ohio.

To EMPLOYERS who advertise for MEN:

WHEN there are many applicants for a single position it frequently happens that the only letters acknowledged are those of the most promising candidates. Others may not receive any indication that their letters have even been received by a prospective employer much less given consideration. These men often become discouraged, will not respond to future advertisements, and sometimes question their bona fide character.

Every advertisement printed in the Searchlight Section is duly authorized.

It will help to keep our readers interested in this advertising if you will acknowledge every application received, even if you merely return the letters of unsuccessful applicants with, "Position filled, thank you" written or stamped on them. If you don't care to reveal your identity, mail them in plain envelopes.

We suggest this in a spirit of cooperation between employers and the men replying to Positions Vacant advertisements.

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POSITIONS VACANT

WANTED SANITARY engineer with several years experience by technical and educational association located in the Middle West. Some travel required. Reply giving resume of experience, education, salary expected and references. P-4636, Engineering News-Record.

INSTRUCTOR, CIVIL Engineering New York City area salary $250-$300 per month start February 1. P-4646, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEER — New England territory open with established national concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. SW-4370, Engineering News-Record.

SALES TRAINEE—Nationally-known company engaged in the manufacture and distribution of fabricated metal products has opening in New York City office for sales trainee with civil engineering degree. SW-4693, Engineering News-Record.

EMPLOYMENT SERVICES

OVERSEAS PROJECTS Guide to most active construction-engineers, oil co's., gov't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int. GPO Box 126E, NY 1, NY.

POSITIONS WANTED

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America. Speaks, reads, writes Spanish. Available immediately. PW-4525, Engineering News-Record.

THOROUGHLY EXPERIENCED construction executive seeks contact with general contractor, preferably in New York area, requiring top man as executive or to handle large project, where volume and scope will permit full use of ability of man qualified to handle every phase of contracting, field and office, buildings and heavy construction. PW-4433, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — Can handle field and office. 24 years experience heavy construction and housing. Prefer bonus proposition. Job location immaterial. PW-4413, Engineering News-Record.

GENERAL SUPERINTENDENT — 25 years field and office experience, heavy and engineering construction. Desires position in middle Atlantic or southern states. Resume if desired. PW-4436, Engineering News-Record.

CIVIL ENGINEER, M.ASCE, 59, degrees, state licenses, 35 years experience; design, construction, and administration; bridges, parkways, thruways, airports, harbor works, railroads, underpinning and foundations. PW-4482, Engineering News-Record.

CONSTRUCTION ENGINEER — graduate C.E. experienced as Project or Office Engineer. Resident, division supt., field supt., estimating, scheduling, cost analysis. Also successful sales experience. Age 54. Salary $750-$850. Relocate. PW-4459, Engineering News-Record.

MASTER MECHANIC, have thorough knowledge all types heavy equipment. 25 years experience, including actual repairing also supervision of maintenance and operation. No preference to location. Seeking permanent connection. PW-4524, Engineering News-Record.

TOP FLIGHT Engineer Estimator age 51. Complete charge office routine and estimating for many years. Public buildings & private work of all kinds. Single jobs up to $20,000,000.00. Have had successful experience solely with contractors over period of many years. Would consider suitable connection in California. PW-4620, Engineering News-Record.

SUPERINTENDENT — 25 YEARS experience, desires steady employment. Thorough knowledge of heavy excavation projects. Work consisting of Road grading, and drainage, superhighways, railroad, earthfill dams, tunnels, mine stripping both coal and iron ore, iron ore mining including crushing, grading, sampling and shipping, and large solid rock excavations. Supervision and maintenance of all types construction equipment, estimating. Available now will go anywhere. A-1 references. PW-4552, Engineering News-Record.

SALES ENGINEER: 10 yrs with construction equipment concern also building products. Large volume. Excellent closer. PW-4602, Engineering News-Record.

GENERAL SUPERINTENDENT experienced buildings, bridges, machine setting. PW-4555, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, estimator, project supervisor. 25 years experience. Proven profit maker. Desires change. PW-4556, Engineering News-Record.

SUPERINTENDENT OR General Foreman — Age 42 — Over 20 years heavy construction experience. Excavation, grading, drainage and paving. Know men, methods, equipment & cost. Have following competent foremen. Available December 10th. PW-4575, Engineering News-Record.

CIVIL ENGINEER, 17 years varied experience. Desires position as chief of party or office engineer or combination in the sout hor southwest—all replies acknowledged. PW-4579, Engineering News-Record.

AVAILABLE: COST control supervisor-office manager-field cost accountant. Age 43. Master of Business Administration. Over 15 years heavy construction, industrial accountability and costs. Good bird dog. French and Spanish languages. Prefer Colorado but will travel U.S. or foreign for long term connection. PW-4604, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT 30 years experience on everything from stores to steel plants. Best references. PW-4660, Engineering News-Record.

OFFICE MANAGER Capable of assuming full responsibility for operation of contractor's office. Fourteen years experience in Government and private contracts. PW-4639, Engineering News-Record.

JR. ESTIMATOR and takeoff, for General cont. 4 years experience in office and field. All types of construction. PW-4658, Engineering News-Record.

SALESMAN AVAILABLE for N. Y., N. J., Pa. area. Know building materials and equipment and their uses. Have sold to contractors and industrial plants. Wish to locate with materials or equipment manufacturer. PW-4654, Engineering News-Record.

CONSTRUCTION MANAGER, Superintendent 51 yrs. C. E. Twenty five yrs. experience in charge for contractors. Capable and experienced in the estimating, planning, and all phases construction of dams, power houses, bridges, marine and subaqueous works. PW-4628, Engineering News-Record.

CONSTRUCTION SUPT. Reg. Pro. Eng. 25 years experience supervision, estimating, expediting all types construction and engineering. PW-4627, Engineering News-Record.

GRADUATE CHEMICAL Engineer. Experienced on A.E.C. process, mechanical & piping installations. 8 years oil refinery experience. Go anywhere. Age 41. PW-4648, Engineering News-Record.

PART TIME WORK WANTED

ENGINEER—18 YRS. Experience desires Part Time Work designing, drafting or planning. Steel or concrete oil refineries, power and industrial plants, bridges, etc. PTWW-4553, Engineering News-Record.

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Byers ½ yd. shovel	Pioneer port. gravel plant; Diesel motor	45 ton port. bin
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For rent,—Cranes, truck cranes, buckets, frost balls, floats and other accessories.
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All steel twin screw tug boats. 38'x13'x6'. Powered by two 142 HP Chrysler engines. 9 to 1 reduction gear.

New, still in the original crates. $6500 each.

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5—LaPlante-Choate Motor Scrapers, Model T.S. 300. Priced at $14,000.00 each.
1—Tournadozer equipped with G.M. Diesel and Torque converter, $12,000.00.
1—L. B. Littleford steam generator 3,000 gallon capacity, and trailer. $5,000.00.
All of the above machines are in excellent condition and are about three years old.
VILBRO EQUIPMENT COMPANY
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Vulcan O or McKiernan-Terry S-8 Hammer
Write or wire immediately.
McMEEKIN CONSTRUCTION CO.
Cheraw, South Carolina.

FOR SALE
One 1954 Adams Motor Grader
Model 550
This machine has less than 100 hrs. of use.
Excellent Condition — Reasonable Price
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NO. 1 VULCAN SINGLE ACTING
PILE HAMMER with Standard Base
AND
NO. 7 McKIERNAN-TERRY
PILE HAMMER
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5 HD20 Allis Chalmers Tractors 1953 Blades
1 Unit Backhoe ¼ yard—Late 1952
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1 P&H 655 Crane Dragline 1953 1¼ yard
2 Caterpillar Motor Graders Model 12 '47-49

Complete Well Point System—A1 Cond. Includes 4 8" Internat. Diesel Pumps, 2 #2 Jet Pumps 500 Well Points 3300 l.f. 8" Header.

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EDITORIALS

Roads That Count

THE ANNOUNCEMENT by General Lucius D. Clay, chairman of the President's special highway committee, in his speech before the American Petroleum Institute, that the interstate-highway system is being singled out for special attention is good news. This 40,000-mile system includes only about 1% of our roads, but it is overloaded with 25% of our traffic. Improved to super highway standards and given the urban extensions that it now largely lacks, the system could handle this traffic efficiently. Connecting our major cities and production centers, these roads are vital to our national growth and essential to defense. They are at the top of the list of the roads that count.

A Deserved Honor

NAMING of C. D. Curtiss to be head of the Bureau of Public Roads will be widely applauded by highway engineers across the country. Advancement to that position provides an appropriate climax to a career that has been marked by distinguished service to the nation, which began following his discharge from the army in 1919 following World War I. As a specialist in highway finance, Mr. Curtiss brings to his new position a background of knowledge that will be especially useful at this time when financing a greatly expanded highway building program is a major national problem.

Why Race With Russia?

THE HEADLINE on a major front-page story of the Nov. 7 New York Times—"Russia is Overtaking U. S. in Training of Technicians"—carries the same warning that has been expressed in recent months by the Engineering Manpower Commission of Engineers Joint Council and by the Office of Scientific Personnel of the National Research Council. According to the story, Russia is reported to be graduating two and one-half times more engineers than the United States. As a result Russia now has 400,000 engineers and 150,000 other scientists to our 500,000 and 200,000. Moreover, the rate of training has been stepped up to the point where Russia will soon outstrip us in the number of technically trained personnel.

This emphasis on numbers, instead of need or proficiency, seems overdone. It sounds too much like part of the "cold war". Russia has excited our envy by loudly publicizing the great increase it is making in the training of engineers and other scientific personnel. From that we have been led to fear that by outstripping us in the NUMBER of scientific personnel turned out by their greatly expanded training program they are going to outstrip us in scientific and engineering development, especially in the field of atomic energy.

Unfortunately, the number of engineers now being trained in our engineering schools and the number of boys and girls taking science courses in our secondary schools is considerably below what appears to be desirable to meet the needs of this country's expanding economy for engineers and scientists in the future. What that need is has never been nailed down. It obviously bears no relation to the number of young engineers and scientists being trained in Russia.

Despite all the claims made by the Russians as to the high character of the training given to their students, ours still may be better trained, especially in the more advanced fields of scientific development. Also, it is conceivable that in its present state of development Russia needs to give some basic scientific training to more young people than we do.

Our problem is not how many engineers and scientists we must train to maintain numerical superiority to Russia. It is determination of the number we need to keep slightly ahead of our own expanding requirements, and then planning to make the scientific and engineering fields so attractive that more young people will look to that kind of activity for a rewarding career.

Presumably, in Russia, young people are sent to engineering and scientific schools in sufficient number to meet what the government decides should be the number in training at any one time. Here, where attendance is voluntary, end objectives having more challenge than the need for keeping up with Russia should be set before our young people.

Real Estate Utilities

THE RAPID SPREAD of housing developments outside corporate limits of cities poses a problem of water supply and sewerage supervision that must soon be solved. Too frequently the new house owner finds out too late that his water pressure is inadequate or that his sewers back up. It may even develop that there are cross connections between water and sewage, with a consequent health hazard. If, subsequently, the development is taken into the nearby city, its city engineer has a new headache, and its taxpayers must help pay for correcting the originally poor engineering and construction.

In a broad sense, state health officials usually have some supervisory powers over these non-urban installations, but in most cases the power is too tenuous and the cost of exercising it too great for available budgets. Pennsylvania health officials, in recognition of this fact, have been campaigning for special legislation that will give them unquestionable authority over these non-urban water supply and sewerage installations. It is to be hoped that they will succeed, and that other states will follow suit until the real estate utility problem disappears.

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